SCHOOL AND SOCIETY

Volume I | Saturday, April 17, 1915 | Number 16

THE MISSION OF UNIVERSITIES AND COLLEGES IN STIMULATING THE DEVELOPMENT OF AN ESPRIT DE CORPS AMONG HIGH SCHOOL STUDENTS

Most extension work confines itself to imparting information. Knowledge can be parceled out and communicated in small or large doses, in popular or technical form; it is in part a commodity for sale or free distribution, with rough but understandable units of measurement, as the amount of subject-matter presented, the length of a lecture, the extent of an inspection, or the pages of a bulletin. An additional method of extension is that of developing through courses and correspondence the ability to apply the knowledge imparted, this ability being far less communicable and measurable than the knowledge. A third method is that of developing ideals as well as ability, inspiring as well as informing, touching the heart as well as the head. This motivation is the most elusive and difficult aim of extension activity, the least communicable and the least measurable; it is the most futile when it misses fire, but the most effective when it hits the spot.

A few lectures, a rare inspection, some extension leadership in the literary, social, and athletic life of schools may be classed as inspirational. Nevertheless, addresses by professors at school commencements are the main extension efforts in this field. On these occasions institutional sermonizing and professorial preachment spread throughout the land like an epidemic of spring fever. Graduates and their fellows are told in a thousand ways how to hitch their wagons to a star and thus become star performers in the affairs of life. But who listens and who cares? Certainly not the overdressed and self-conscious graduates themselves, who are mostly thinking of what other people may be thinking of them; not their fellow students in the audience, who have come for a show instead of a sermon; not their fathers and mothers, who are naturally absorbed in parental egotism; not their teachers, who are concerned about the smooth running of the commencement machinery. Here and there an auditor without other preoccupation may take note and receive an impulse upward, but to the audience as a whole there is insufficient excuse for this intrusion into what might be called a family function. The institution represented by the speaker thus participates as an advertisement, and the speaker himself may like to tickle his pride with local attentions. Yet this has nothing to do with the real purpose of a commencement, which should give the opportunity for graduates and other students to illustrate to parents and community some interesting phases of their school achievement. The bringing in of an outside speaker is really a confession on the part of the local authorities that there is not enough vitality in the school to make itself interesting to a commencement audience.

However, there are many better opportunities for the representatives of universities and colleges to appeal to the spirit of idealism in schools and communities. Especially are high schools ready for this inspirational form of extension activity.

Looking from afar with youthful imaginations, the young students revere college life as the embodiment of higher ideals; and they welcome, in fact they are flattered by, a genuine interest shown in their problems by the higher institutions—higher, it might be, on account of higher ideals. But the interest must be genuine, seeking to help schools and students as ends worthy in themselves and not as college fodder. Naturally teachers and students will be more warm-hearted if their visitor has no ulterior motive of catching mice for the cat at home. Higher institutions will get in time all the rewards of their helpfulness that they deserve, both in students and in support, without having to advertise the special merits of their own trade-mark.

Adolescence is the most fruitful period of responsiveness. Its rapidly enlarging conception of the relation between the individual and the group brings a self-consciousness, on the one hand, and a social consciousness on the other; and the transitional changes and inconsistencies in the adjustment between these two demands cause either an unconscious or a conscious hunger of high-school students for suggestions. Although boys and girls may fail from ignorance, from misdirection, or from lack of self-control, they can be touched now as never before by the right kind of appeal. But the right kind of appeal is hard to make. No one should attempt to make it without being able to combine some insight into adolescent thought, some liking for boys and girls, some sense of humor, some knowledge of high-school organization, some spontaneity in public speaking, and, above all, some feeling of consecration to this end. If he can early give his student and faculty hearers confidence that he knows and that he cares, he has won already; but if he delivers prepared generalities, he is only tolerated, not accepted. And let him never talk down to his audience but always on the level.

The present paper reports an experiment in using university extension to further the character aim in education. It has been my privilege for three years to carry on in Virginia, in addition to university teaching, a state-wide campaign for the school child's health. More and more have I felt that this emphasis on health ought to include ethical as well as physical phases, personal healthfulness being interpreted as a living whole of body, mind, and character. My belief is that boys and girls are moulded in home and school by atmospheric pressure, fifteen pounds more or less to the square inch of personality. Preach, discipline, punish all you will, but unless you change the atmosphere either in quality or in quantity you talk and act in vain. Therefore, the atmosphere of a school is its most essential educative characteristic. With this idea in mind I have been making at high schools in the state a series of assembly talks on the life of high-school students, especially the life that centers around the school. The purpose of this campaign is to cooperate with the better schools in bringing about the right kind of atmospheric pressure, the right spirit of healthfulness, happiness, cleanliness, order, industry, honesty, purity, courtesy, kindness, cooperation, and helpfulness.

On account of the many schools to be visited only one talk a year can be made in each school, but this talk, of three quarters to an hour in length, is supposed to be the beginning of other conferences along the same line between faculty and students. My aim is to vitalize and popularize standards of high-school conduct; the transformation of these standards into active, permeating principles of an individual school is emphasized as the main problem for teachers and students to work out them-

selves in mutual assistance, neither being able to succeed without the other in meeting this responsibility. Care is taken in selecting the schools to be visited, as it is absolutely necessary to rely upon some capacity for leadership in the principal or a prominent teacher; otherwise the follow-up work is either omitted or poorly done. Consultations with principals often reveal weaknesses in the local administration, in the student body, or in the home background; and these consultations also give opportunity to stress my belief that the development of the atmosphere of a school is the fundamental duty of a principal. Sometimes one visit to a school shows that a second would not be profitable for lack of local leadership. Nevertheless, whatever value my work possesses is largely due to the insight given me by certain principals, teachers, and students, and to the ideals exemplified in the best schools.

In each successive visit to a community, I try to build upon the results of earlier visits, in hope that the discussions themselves, the welcome and responsiveness of the audience, and the personal and social effect will be cumulative. Success in this direction has proved the advisability of going back again and again to the same schools rather than adding many new schools to an already overcrowded calendar. As these visits generally include evening talks to the community on the health and character of children's lives out of school hours, I can thus urge parents to make their children forces for good in school. This helps greatly!

The following skeleton account of three high-school talks can give but a poor idea of the flesh and blood, the local color and good spirits necessary in any appeal to adolescence. As everything about my work is tentative and local, its suggestive value is limited to the who and what and where and when of its application.

The title of "The Esprit de Corps of High-School Life" is used for two different but related discussions. The first one is more often made at those schools where I "sense" a spirit of disorder or learn of it from others. A full analysis of a few points being more effective than a summary of several, this talk is confined to the relation between teachers and students in promoting order and good-will. The "smart Alecks" are diagnosed and ridiculed so as to create an uncomfortable atmosphere for the student who loves to bring himself or herself into notice by noise, interruption, and pert remarks. The "cold shoulder" of fellow students is the most powerful weapon in school discipline; and its wise and considerate use should be approved as an expression of loyalty to the school's ideals. Whether popular or not, whether good fellows or not, "smart Alecks" are often tolerated or even encouraged in interfering with study or recitation, because they furnish a relief from the concentration of school work. To reveal them in their true light as robbers of the time and consequently the education of their class, to ridicule the real silliness of what they think is cleverness, and to bring the whole matter down to its basis in conceit, are ways of meeting what is probably the most general source of disturbance in school life, more general even than adolescent carelessness.

Then follows a discussion of what teachers can mean, ought to mean, and desire to mean to students. By the time boys and girls reach the high school they should have grown to the conception that teaching does not involve any antagonism to or suppression of student life, that its real aim is to understand each student and direct his development in so far as the school spirit and

work can be made to do so. An occasional expression of sympathy to both students and teachers, because some of their work is not as useful and interesting as it ought to be, gives me added influence with an audience. Appeal is then made to students to show consideration to their teachers, to adopt the attitude of friendship rather than of criticism, to let their real kindliness show itself in efforts to lighten and brighten the strain of their teachers' lives, and to recognize that every element of friction or disorder between a teacher and even one pupil will limit for the class the efficiency of instruction and consequently the clearness and scope of the knowledge and ability gained. Teachers as well as students may fail to understand the spirit of cordiality that should exist in high schools and they may provoke opposition; but the best way to meet any past misunderstanding on the part of either one is to begin anew with a determination to let the other party be guilty of the first breach of friendship.

The second talk on Esprit de Corps attempts to make students conscious of the responsibility of each for all and all for each. In realizing efficient moral education social responsibility should be seen and felt by students now and here, its satisfaction and its sacrifice should be a present actuality; and the best way to intensify the adolescent sense of social worthwhileness is to magnify and dignify the individual's daily significance to the group life of his school. As an illustration to students I describe their school building, supported by many foundations, some outstanding, some hidden, but all necessary to the strength of the whole. If one pillar, it may be if one brick or one stone, is weak, the building is to that extent weak as a whole; and, furthermore, this weakness involves extra strain on the other pillars, especially those of the same section, even though they can never fully be substituted for another part. In a similar way is the character of a school supported by its students, some prominent, some overlooked, but all necessary to the strength of the whole. Whenever one student is weak, he weakens the entire school and adds extra strain to those students who are manly enough or womanly enough to uphold their school, even when weaklings would let it fall.

One of the finest expressions of a school's character is its refinement. Courtesy, consideration, culture should be insisted on in all schools, as there is no age limit when these standards should not apply. However much we may compare schools as to their equipment and instruction, we would be even more surprised and helped by a comparison of them as to their tone. Sometimes even a principal may be as unconscious of the deficient tone of his own school, as one long in a close room may be unconscious of its malodorous atmosphere. A public high school should be a refined and refining place for boys and girls to live in, a place where the hardness from some homes will be softened and the roughness polished off, where the gentleness from other homes will be contagious and the culture democratized. High-toned public high schools are the best places to educate boys and girls—from advantaged as well as disadvantaged homes—because in this mixture of all classes the students can grow in their judgment of human worth underneath superficial differences, and the genuine superiorities of character and culture can emerge and be sought after wherever found. To limit rather than to guide the growth of this judgment at the high-school period, when the social criteria of homes are being re-formed by adolescent individualism and experience, is probably to

limit the vision of boys and especially of girls for life.

But what individual weaknesses lower the tone of a school? In this talk only five are discussed—profanity, obscenity, and rudeness among the boys, lack of reticence and of justice among the girls. My aim is not to inveigh against these tendencies but to trace them out in their natural ugliness. Exhortations, condemnations, and extremes are methods most often resorted to in belecturing students into virtue; but far more effective are frank chats about the hindrances to personal culture, social recognition, and business success involved in loss of tone. Let it be further emphasized that the school atmosphere as a whole is the combined result of the refinement of each student in the relations of school life, and that any one who lowers the tone of a school deserves to be met with individual and group disapproval.

Therefore, I urge students to seek the best in others and, above all, to develop the best in themselves so that others may seek them. They should choose companions to be proud of, and see to it that these companions will be proud of them. Let school honors go to personal merit, the selected be the really select, the leaders be worthy of their leadership, and all factions yield to the idealism of the whole.

Such an appeal gains in force by being made before boys and girls together, as each is stimulated to be worthy of the other. Especially important is the responsibility of girls to deserve and insist upon a high level of refinement and chivalry in their boy associates. All theoretical arguments in favor of separate high schools have little weight against the incomparable value of educating boys and girls together in cooperative work and courtesy under cultural supervision. Just as democracy between classes should bring out the best in each, so can and does democracy in good high schools bring out the best between the sexes.

The third talk is on "A Square Deal," doing honestly what is required in both work and play. Honesty is illustrated as the basis of cooperation in school, in community, in nation, in business, the ability to act together being proportionate to the degree of mutual trust. Honesty is defined not simply as outer conformity, best policy, or good reputation, but as an inner support of and reliance upon one's own trustworthiness. The hope of a school, the bulwark of society are those students who can be trusted through and through: a request from a teacher, a lesson to be learned, a promise to be met, a judgment to be made, a game to be played—each and all being done at right angles, not obliquely. But the corner-cutters, the dodgers and the undergrounders are the despair of everybody. To get forbidden help on examinations, to skip the school requirements, to create disorder when the teacher leaves the room, to dodge the issue when a deed is done, to break the rules of a game when the umpire isn't watching, to skimp a job when the boss won't find it out, to violate the law when statutes aren't applied—these are expressions of the same general tendency. If a school tolerates dishonesty it is diseased, and the sources of infection should be cleaned or cast asunder.

Appeal is then made for an honor system. It is a mistake to extend this system to all the dishonesties of adolescence, many of which are temporary, or to confine it to cheating on examinations. To inculcate a public opinion for general square dealing, strengthened by a careful weighing of evidence and a graded punishment for more serious offenses, is a problem of great delicacy in public high schools, which can only be solved by a study of local condi-

tions both within and without the school. An honor system can not be forced upon students, they must grow up to it; and it must be a high-school not a college system, for in this, as in most matters, college plants will be exotics in the high school. Outsiders should only suggest; high-school faculties and students must work out their own methods in meeting this basic responsibility.

The subjects of other talks are as follows: "The Relation of High School Students to their Parents," an appeal for appreciation; "Waste," the fruitless and harmful use of leisure; "Piddling," lack of concentration in study; "Organization," the advantages of getting together; "Adolescence," the time to grow up or grow down.

The purpose of this paper has been to arouse more active interest, especially among universities and colleges, in the school life and character development of high-school boys or girls. One expression of this interest can only call attention to the opportunity before us, not suggest to others their method of realizing it. But this is sure: we professors need contact with the life of high schools in order to vitalize and inspire our own thinking and teaching. For without that contact the professionalism of our inspections and credits and methodologies may degenerate into formalism, and the flame of the spirit flicker out and die.

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THE TEACHING OF SCIENCE TO CHILDREN IN THE GARY PUBLIC SCHOOLS

THE teaching of science to children in the Gary public schools is based on the principle that children should commence the study of science early in the grades, so that while their minds are still plastic and their interest in natural phenomena is still keen, they may develop naturally in their knowledge of the sciences just as they now develop in their knowledge of arithmetic and grammar. There is, in fact, much better reason for teaching the sciences in the grades than there is for teaching such unnatural subjects to child nature as arithmetic and grammar, because the child is vitally interested in the happenings of nature about him, while his interest in arithmetic and grammar should naturally develop at a later period of life.

Every healthy child is a bundle of activities. Unless suppressed, he will become an animated interrogation point. His insistent and persistent questions mean that he is trying to find out the relations of things in this great, new, and wonderful world into which he has been cast. He wants to know what things are made of; where they came from; what things are heavy; what things are light; what things are hot; what things are cold; how things are made, and how they work. By such questions, the child is trying to get an understanding of the world in which he lives. These questions lead to a knowledge of general truths, which form the basis for what is known as "common sense." By these questions, he is thus laying the foundation for all of his future thinking and reasoning.

Not only is his interest in nature keen while young, but paradoxical as it may seem, his interest wanes as he grows older, because familiarity with nature, unless accompanied by scientific information, breeds a satisfied feeling of knowledge, which is likely to deaden his interest in it. Yet, unfortunately, we are permitting the child to grow up, surrounded on all sides by the mechanisms of scientific discovery, and neglecting to teach him the scientific principles underlying their operation, until

familiarity has deadened his interest in them. The child, who is using, for the first time, the modern telephone, is in a better mental attitude to learn the scientific principle involved in its operation than is the man or woman who has grown accustomed to it by daily use.

To put off the study of the sciences until the high school grades is not only unnatural, but it is undemocratic as well, because only one child out of every fourteen, entering the public schools, is graduated from the high school. It is undemocratic for the public school to be devoting the greater part of its energy to this one boy or girl when it should be giving the best possible start in life to the other thirteen. In this preeminently scientific age, a general knowledge of the sciences is not only desirable, but it is almost necessary to success in any field of human endeavor. Many of our professional men such as lawyers, doctors, teachers, and preachers are hampered because of the inefficient and insufficient training they received in the sciences while they were in the public schools.

The public school is not only training the one at the expense of the thirteen, but it is likely to use very poor judgment in selecting this one upon whom to bestow its favors. The one who is graduated from the high school is not necessarily, by any means, the one who is adapted by nature and intellect to make much use of the half-masticated and hastily swallowed bits of scientific information which he has picked up during the last three years in high school. To uncover the hidden tendencies of the human mind and discover its natural bent usually requires years of experience and meditation along various lines of activity. This favored one may, therefore, rush off, with his half-masticated and half-digested scientific information, to college, thinking himself to be a budding Faraday, when he might have been saved considerable humiliation and disappointment, if he had been given more time to think it over, by commencing the study of the sciences early in the grades.

This unnatural and undemocratic system of delaying the study of the sciences until the last years of the high school is thus a boomerang, which not only hits the thirteen below the belt, but which is likely to fly back and administer a humiliating blow to the favored one by not giving him time to find himself. As a result of this vicious system, each year sees a crop of incompetent and inefficient professional men thrust out into lines of activity for which they are, by nature and training, unfitted, while the other boys and girls, those other thirteen, are handicapped by incapacity and helplessness, because of an improper system of education.

Already, it is becoming clear to the average citizen that this system of education is top heavy, and, unless it is changed, it is likely to become more so. Already we hear a murmur arising from the people, that the high schools are for the favored few; that their tendencies are aristocratic; that the poor boys and girls can not afford to go to the central high school, etc. Neither would we, as teachers, care to deny these charges, nor do we dare to shirk our responsibility by ignoring them. We must face the charges, but what shall we do? Shall we maintain a separate high school for the favored one of doubtful value, or shall we rearrange our school system so that the high school will be open to all children? This latter course is the only feasible one which will solve the problem of educating the masses as well as the classes. By adopting what may be called the unit system of education Mr. Wirt has not only brought the high school to all the children, but he has succeeded in so interweaving the high-

school, grade, industrial, and playground courses of study that it is difficult to tell just where the one leaves off and the other begins. By this truly natural and democratic system of education, each big school plant thus becomes a throbbing organic tetrad, four in one, pulsating with the happy heart throbs of thousands of contented children, who here have an equal chance to grow up naturally, learning to play, work, and think under the observant eyes of the master mechanic and of the most experienced and competent teachers that the universities and schools can furnish.

With such a system as this, it is possible to put the high-school science teacher down in the grades to take up with the children, in a simple and non-mathematical way, the discussion of the various scientific questions which have been disturbing their little inquisitive minds. In the discussion of these questions with the children, however, the method of procedure should be about as informal as are the children themselves when at play. Neither does it make much difference where you commence or where you end, so long as the interest of the children is maintained. The old-fashioned recitation methods, where the teacher asks a formal question to a certain child, who answers it, if he can, are likely to become so dry and dusty that they would put a vacuum cleaner out of business. What we must have, if we are to teach the child science in the child's way, is what I would call an "experience meeting" in place of the formal recitation, where the children and the teacher meet on common ground to exchange ideas about their experiences in dealing with nature. The outside world would thus be used as a great laboratory while the "experience meetings" would simply interpret these experiences in terms of scientific principles. This work should be supplemented by demonstrations by the children, assisted by the teacher, a little individual laboratory work, and considerable vocal reading from text-books and scientific story-books. The procedure during the readings should, however, be very informal, so that any child may feel free to relate his experiences as the spirit moves him. All laboratory work should be written up in correct English in the best possible style so that the child will learn his English in the only practical way, and that is by using it.

In the preceding paragraph, it will be noticed that I have given laboratory work a secondary place in the teaching of science to children. Since this seems to be out of harmony with this age and with child nature, whose predominant trait is action, further elucidation of this point should demand our attention. This apparent lack of harmony will disappear, I think, when we have arrived at a mutual understanding of the term "laboratory work," a term which has been used during the past generation to cover up a host of pedagogical sins in connection with high-school science work.

Laboratory work is, of course, work done in the laboratory, but it is also evident that the real meaning of the term will depend on the nature of the work done and on the kind of laboratory in which it is done. Granting that the laboratory is well equipped and in charge of a competent instructor, it is also evident that the nature of the work done should depend on the age of the pupil and on the purpose for which it is done. Laboratory work should, in the university, and we also hope, in the last years of high school, under the Wirt system, have for its sole purpose a technical scientific training of the student for his chosen profession, while in the elementary grades its chief purpose should be to impart as much

general scientific information to the child in the given time as is possible. Failure to keep in mind these two distinct purposes has caused much confusion and waste of energy during the past generation. During this transition period, high-school students have, without any distinction as to sex or ability, been instructed just as if the sole purpose was to make professional or research scientists out of them all. The error of this purpose can be seen in the fruitage of this generation of high-school graduates.

I shall now try to make clear the methods of procedure which should be followed in laboratory work, depending on our purpose. If we are dealing with children and our purpose is to impart as much information as possible, it is evident that we can not resort to the slowgoing, detailed laboratory methods of the scientists. If we do, our enthusiastic young naturalist, who is very anxious to learn, but who is not particular how he learns, just so he learns quickly, will lose sight of the goal for which he is striving, and become engulfed in the method of trying to reach it. To make myself clear, I once knew an instructor who wanted to impress upon the children of an eighth-grade class that carbon is a constituent of organic compounds. He went about it by first spending one hour dictating to them a detailed list of instructions, which they mechanically copied down, telling them just how to put a flake of oatmeal on a crucible lid and char it, and how they likewise were to char pieces of meat and potato, a lump of sugar and a block of wood. Then the children set about their task to do these simple things, and before they had finished the experiment and written it up, which part consisted in mechanically rearranging the sentences which had been dictated to them by putting "I did it" in place of "you do it," two weeks had passed. The children had painfully tried to follow the detailed directions given them, and as a result they got lost in the method and were not greatly impressed with the principle involved. They, no doubt, got some training in muscular and nerve control, but they got very little new information for their two weeks work. In fact, the instructor, in addition to using the wrong method, unfortunately forgot that the children had grown up in the much larger and more practical laboratory of nature, where they had seen all of these chemical changes many times in their life around the kitchen stove and all that was necessary, in this case, was to organize and interpret the information which they already possessed, by means of the experience meeting and class demonstration. This case is only typical of the enormous waste of energy which is occurring in the high schools all over the country by trying to duplicate in man's puny little laboratories these great fundamental experiences of life, which we can get to so much better advantage in the laboratory of nature.

Now let us contrast that method with the more natural and, I think, more efficient one of trying to use the child's experience as a basis for laboratory work, given largely in the form of demonstrations by the children, assisted by the teacher. The class comes into the room and finds the instructor in an easy chair with every feature of his face radiating good cheer and humor. Before him on the demonstration table is a piece of coal, a piece of paper, a crust of bread, a match, a lump of sugar, a test tube and a glass of water. The instructor opens the conversation by picking up the piece of coal and asking the children if they would like to eat the piece of coal. All of them except one look at him in astonishment and say "Why Mr. Coons,

coal is not good to eat," but this one, who seems to have been from the country, says it is not poison because her father had fed some to their hogs when they had stomach trouble. Yes the instructor says it is not poison, because he eats it every day and seems to thrive on it. Their interest is now aroused, which, of course, must be the fertile field prepared to receive our seed of the tree of knowledge. Then the instructor jumps to his feet in a sort of dramatic way, with the lump of coal in one hand and the glass of water in the other, and says, "Children do you like candy?" Sure they do. "Well candy is made out of coal and water." Now they are ready to believe that he is a fit subject for the insane asylum, but before their minds have time to dwell too long on this idea, the instructor relieves the tension by asking them if they had ever seen any burnt sugar or candy. They had seen the black substance left after burning sugar and some thought it looked like coal. Some one is now selected to prove that sugar is made out of water and coal, and while she is heating the sugar in the test tube, the others watch carefully to see the miraculous change of sugar into water and carbon. After the sugar is charred, the test tube is passed around the class that each one may see, at close range, the water collected inside the test tube and the carbon in the bottom. In like manner, we select different girls to char all of the organic substances on the table, and they soon see that carbon is a constituent of them all. At this point we get into a discussion about the cooking of foods, and why we should be careful not to get them too hot. This led on to a discussion of why we eat foods, which got mixed up with the use of coal in the furnace. This last point led to a comparison of the use of the coal in the furnace with the use of carbon in the body. One bright little girl wanted to know if we could make sugar out of coal and water. I told her that we ought to be able to make it. She said she was going to try it. Very well then, I said, when you go home, go down into the coal bin, get a lump of coal, crush it up very fine, and stir it in a bucket of water.

The next morning, she came early to tell me that she had done as I said, but she still had just coal and water. She was now ready to learn another lesson, but the chance was too good to waste on her alone, so I told her to wait until her class came in, and we would take up her problem with the class. When her class came in, the instructor was prepared to bring out the great fundamental distinction between mixing substances together and causing them to unite together. While a little girl came forward to grind up a lump of coal in a mortar, the other little girl was relating her experience in trying to manufacture sugar and telling what her mother said about the teacher for putting such nonsense into her head.

We then had her repeat her experiment of stirring the coal into the water, and we called the class's attention to the fact that they were just mixed together, that we could still see the coal and the water. They wanted me to unite them together and make sugar. I had to admit that the sugar cane could do that better than I. This led us into a discussion of how the plants take carbon out of the air and water out of the ground and, in the leaf, unite them, with the help of sunshine, so as to form sugar. They were told, however, that while so far, there were some substances which man could not cause to unite, there were others which he could cause to unite very easily. For this demonstration the instructor had selected potassium iodide and mercuric chloride, because they unite so easily and

because the color of the resulting combination is so striking. The two salts were mixed up in a mortar and passed around the class. The class's attention was called to the mixture of long needle-like crystals of mercuric chloride and to the cubical like crystals of potassium iodide. Then he selected a member of the class to come forward and cause them to unite by grinding them in a mortar with a pestle. The resulting red powder, unlike either of the two substances mixed together, teaches them in an impressive manner, the difference between mixing substances together and causing them to unite together; that, when substances are united together, entirely new substances are created, which are unlike either of the parent substances; that, although sugar is made up of coal and water, it is unlike either of them.

One day we were reading the story of iron and steel, and while we were showing the boys samples of the different kinds of iron ores, one boy said that he thought there was some iron ore in a bog out close to where he lived. I told him to bring in some of it. The next morning he brought in a can full of bog iron ore. They wanted to know if we could get the iron out of it. To arrange for this, we had two boys take a Hessian crucible down to the school plumbing shop and drill a hole through the bottom of it large enough to admit a stereopticon carbon. We then pushed the carbon up through the hole and sealed it on the inside with clay secured from the school potter, letting the end of the carbon project about an inch above the clay. Then we supported the crucible on a ring stand, insulating it from the ring by means of asbestos paper. Another stereopticon carbon was then fastened in a clamp, and attached to the ring stand so that it came in contact with the other carbon projecting up through the bottom of the crucible. The crucible was then packed with a mixture of ferric oxide ore, charcoal and limestone. We took the apparatus, thus adjusted, up to the gallery of the auditorium and detached the wires from the stereopticon, but left the rheostat in series with the current, and attached the negative wire to the lower carbon of the apparatus and the positive wire to the upper one. As soon as the current had been established, we separated the carbons so as to make an arc. The fearful heat of the electric furnace immediately made the charcoal ignite, causing a partial reduction of the ore. We let the current continue for a few minutes, and, after the furnace had cooled, we found a ring around the lower carbon, the core of which was metallic iron. This experiment was used as a basis for the study of the steel industry upon which the foundation of Gary was laid.

The trouble with most of our science teaching is that it is too remote and unrelated to life and its common everyday problems. But the instructor who possesses that vital spark, that touch of reality, that knack of connecting his subject with life, with news, with daily experiences, knows how grateful and how interested the children are. Their eyes and faces glow with interest. What may otherwise be a dull and listless hour thus becomes "fun" and excitement, because the children have felt the thrill of living over again their experiences interpreted in terms of scientific principles. What most people need is a correct understanding of general scientific information and not a knowledge of laboratory manipulation which they will never use after they get out of school. The belief that skill in laboratory manipulation is essential to scientific information is erroneous, but it is essential to a professional scientific career.

Children are extremely gregarious.

They learn faster when seeing each other work or when working under the inspiration of the group than when working alone. Not many children enjoy playing alone, because it is difficult to organize their thoughts and shape their conduct, unless they have some one with whom to contend. Individual laboratory work is, therefore, unnatural for the child. The simplest laboratory processes are likely to be difficult for him unless he has seen those processes demonstrated by the teacher or by another pupil. A laboratory experiment, which can not be performed after a class demonstration, without following detailed instructions dictated by the teacher, or gleaned from a laboratory manual, should not be attempted by children. While mechanically following a list of dictated directions does cultivate a certain type of discipline, it also destroys initiative and independence. The world is already filled with machine scientists. The crying need of the hour is for a different type of scientist—a type which is well represented by such men as Steinmetz and Edison who, fortunately, were not made into human machines by the too prevalent dehumanizing laboratory methods of to-day. The child should be given a chance to work out what is within him, but his activity should not be controlled by formal direction. Spontaneity is one of the precious traits of human character worth conserving in any group of children. Formal direction and hectoring prohibition are the two ogres of child land. Over-officious supervision of children's studies checks their initiative and induces a feeling of dependence that spoils resourcefulness. It is a good thing sometimes to turn the children loose mentally as well as physically. The child who always has to be told just how to put a flake of oatmeal on a crucible lid, has an undeveloped imagination. Far better would it be to let him use his own brains in devising his own ways of doing things, which is easier than one would believe who has not tried it.

Chas. S. Coons

COLLEGE SPIRIT AND STUDENT CONTROL

Inasmuch as all efficient student control must be based on "college spirit," an explanation of what is meant by college spirit is a necessary introduction. There are very few things about a university that are less understood than "college spirit"; less understood by outsiders, by the faculty, even by the students themselves. Wild cheering at football games, demonstrative street celebrations of victories, extravagant display of college colors, mass meetings, balls, the affectation of certain distinctive costumes; all these collectively, or any one of them individually, are accepted in themselves as "college spirit," whereas they are really only the telltale bubbles which evidence the working of the real leaven hidden within the mass. In themselves they are nothing but the outward and visible sign of an invisible spirit, itself the real soul of the university.

Without that soul the university ceases to be a living organism and degenerates into a cold, unsympathetic, uninfluential group of laboratories; a factory for the furnishment of the intellect. In the eyes of the student, if not in the eyes of the world at large, it becomes a factory where he works for so many hours a day for so many weeks or months or years, and where he may acquire by due diligence certain facts and theories which may be useful in the pursuit of wealth in future life. It is an employment agency where he spends a certain probation convincing the officials of his ability to handle such work as they may procure for him. The exit of the factory passed

and the commission to the agency paid, the student passes on to the job procured with a feeling of satisfaction or of contempt for the university, as the job may or may not suit his taste. His view is entirely material. If the proper job is not forthcoming, the university has failed and the time spent in the knowledge factory has been completely wasted. In any event the influence of the university ceases when the student passes beyond its gates because the student feels that he has, or has not, received the knowledge he paid for; the bargain is complete, and the source of the purchase soon forgotten. Such is the soulless university; it has no future.

In order to understand this soul, we must look away for a moment. What is the true criterion by which the success of a university should be judged? Surely not by the success of the graduates, for success is too largely an individual matter, some ability that the individual had inside of him and which would have come out no matter where he had gone to school. No amount of training could make some men successful any more than a lack of training could hold some other men down. No, success is not the thing. It is the enthusiasm, love and veneration for the old college sustained undiminished through the years of after life; the interest in the never-old alma mater, her progress and development; it is these things which indicate the hold that a university has upon its students and the influence it exercises over their lives.

The spiritless, soulless college comes into cold disciplinary contact with its students for the few hours of the four-year course that they spend within its walls; outside its gates they are outside the sphere of influence, no matter how many cold-blooded committees may be trying to regulate their private lives. The dear old alma mater takes her students warmly to her bosom the moment they begin to breath her atmosphere and her ever youthful spirit accompanies them throughout their lives. Which is the better teacher, the one who influences her students for only the few hours that they are actually within her grasp, or the one whose influence reaches far out into the future years through happiness and sorrow to the dying day?

Men are only a little older children. The child who has a teacher he does not like, no matter how good a pedagogue that teacher may be, learns comparatively little; while the child who loves his teacher learns rapidly all she knows, be her methods good or bad. And it can not be otherwise with a university. No matter how good her equipment, or how complete her course, if the human sympathy is lacking, the teaching does not stick with the students; given that bond of sympathy, all that is hers will be theirs. Dull of intellect they may be and slow to learn, but the spirit penetrates their every fiber.

What, then, is this spirit? There can be only one answer; it is loyalty born of reverence. The university which is not so revered may be giving the strictest kind of a discipline to the mind, but has no influence whatever over the building of character—which is quite important if not the most important part of a student's education. The university that neglects this moral side is neglecting a very important part of its work. There is, however, very little to be gained from this explanation unless something constructive can be put forward to show how this spirit may properly be fostered, and that is the principal object of this paper.

Such reverence as we have been trying to describe as the basis of all true college spirit would not be accorded to a factory or to any unsympathetic organization, coldly dealing out scientific facts and tyrannical

regulations. Before there can be reverence there must be interest. Not the mere passing interest of a student in a new subject or a particularly entertaining lecturer; not the impersonal interest of the scientist in an absorbing problem of research; but the warm, sympathetic interest of ownership and pride in something that is really a part of ourselves; where the object of such interest is smaller and weaker than ourselves, it results in affection and patronage; where the object is infinitely larger and stronger, it results in a true reverence. Only where the students have this proprietory interest can the true spirit of reverence exist.

That is virtually the same thing as saying that there can be no interest without responsibility; and we have at last come to the keynote of the success of university influence, to the motif of true college spirit. Accept this and the real problem is clearly defined: how can the student be given this feeling of responsibility? In some universities it is present to a marked degree, in others it is entirely absent. And in every case the true college spirit and fostering influence are present in exactly the same degree that the student feels his responsibility. It is attributed variously to the age of the institution; to the class of the institution—whether it is a state or private university; to the form of the organization—whether it is a democratic or an autocratic system of control; but none of these theories hold true in the light of investigation—for the spirit is present in some of the institutions of every class and wholly absent in others. No, the cause is more subtle than this and can not be classified by institutions.

It lies in the attitude of the individual faculties. The whole question is: does the faculty consider itself the university, or does it consider the students the university and itself a corps of instructors to serve the students in every capacity within its power? Where the former exists there can be no spirit; where the latter is held it can not be absent. The foreman is responsible for his gang, the captain for his company; there can be no taxation without representation; it is the law of the world to-day. The individual feels no responsibility for his acts if he knows that another is responsible for him. The faculty that usurps the rights of the students is responsible for the students, and relieves them of all individual responsibility. Possibly there is a temporary administrative advantage—doubtless that is what has induced the adoption of the method by many of the newer universities—but it eventually kills the loyalty of the students as surely as the same methods killed the loyalty of the American colonies to the mother country.

The students *are* the university. On them depends the employment of most of the faculty, on them depends the relation between town and gown, and on their conduct in future life, possibly even more on their personal conduct than on their professional success, depends the reputation of the university.

The faculty *is* there to serve the students. They are hired to teach, and even what they shall teach is largely influenced, if not definitely determined, by what the students want. If there is anything that they want very much they will most certainly get it. The faculty are the servants of the students. The more gracefully they acknowlede this service and the more conscientiously they perform it the greater their influence will be.

If then the students do really control the destinies of the university, it is important that they should realize it and have the responsibility of it. There is nothing worse than an irresponsible ruler. It is here that

the faculty should perform one of its most important functions in impressing the students with the weight of their responsibilities. They must be made to realize that every act they do reflects in some way, for either good or bad, upon the university; that is to say, upon themselves. The committee system of control by the faculty works exactly in the opposite direction. These committees, attempting to control the social and moral actions of the students through faculty-made regulations, usurp the powers which rightfully belong to the students, and in doing so take over their responsibility. The students rightly consider that these committees, not themselves, are responsible for all their actions so regulated. They realize that they may have to answer for their acts to the committees and pay for them in the form of punishments inflicted, but the moral obligation is gone. Every such obligation taken over by the faculty committees weakens the moral stamina of the students. Moral character is built up by the exercise of judgment and self-control; it is broken down by the release from this practise. This principle is recognized even in the control of our criminal institutions.

The students are perfectly capable of doing these things themselves, and will do them much more efficiently than any faculty committee can, provided always that they recognize their responsibilities. Impressing upon the students a realization of that responsibility is the only part the faculty should take in the matter. This should not be done by personal advisers officially appointed, by chaplains or by proctors, but can be more effectually accomplished by the general attitude of the faculty and other university authorities, by speeches at all student functions where they are invited to talk, continually reiterating that the students are themselves the university and in that capacity entirely responsible for the honor and reputation of the university.

In an institution where the proper spirit and relation already exist nothing further is needed to maintain the proper conduct. Where the system of committee control is in operation the same methods will be successful in restoring the students to their rightful functions. But care should be used in rehabilitating them in the powers they should exercise. Many an attempt at the introduction of such a scheme of self-government, especially the part of it known as the "honor system," has failed utterly because the authority has been dropped indiscriminately in one big lump on all the students, without sufficient preparation.

For the proper exercise of such authority by the students there must be, not necessarily all-student councils and like administrative organizations, but a wholesome respect for the upper classes. And this respect can be commanded by the upper classes only when they have certain powers and privileges which the lower classes do not possess. This does not mean the hazing and oppression of the lower classes, but simply a restriction of privileges to their seniors. That is entirely logical. The freshmen are newcomers, strangers to the ways and traditions of the university; naturally they are not in a position to carry out unwritten laws of which they are ignorant. The sophomores, though they may be presumed to have imbibed the atmosphere, are the rivals of the freshmen in everything and can not be trusted to either control or instruct them in any way. There is too much chance for prejudice. The upper classmen have been at the institution long enough to have become fully imbued with the spirit of the place and to have forgotten the prejudices of the early years; give them the authority, and the dignity in the eyes of the lower classmen

is assured, and that same dignity assures the proper exercise of the authority. The broad principles on which the authority is based raises it high above class prejudice and the exercise of it is never questioned.

Once in a great while this form of government, like all others, will go astray, but the reaction from it is always swift and sure, leaving the students stronger than they were before; while every outbreak under the committee rule means the increased tyranny of the committee with its inevitable consequences, a lessening of the students' responsibility.

It is this exercise of self-government during his college life which strengthens the student for the life-work before him. It is these ideals, these traditions, this atmosphere which permeates the student's every fiber and becomes an integral part of his life, that are forever dear to his heart. It is not the dry facts of mathematics, the drier theories of philosophy, or the cold reasoning of logic that influence the student throughout his life (they are early assigned to their proper pigeonholes where they may be used or forgotten as occasion may require); not these things, but the memories of his student activities, always colored by the atmosphere of the college, which stir his blood and influence his actions in his old age, and cause him to follow the progress of his old university with kindling eyes and loving interest.

A beautiful set of buildings, a complete equipment and a brilliant faculty may undoubtedly aid the student in his pursuit of knowledge during the four years of his college life, but it is the college spirit alone which puts its indelible stamp upon the student's life and extends the influence of the university from matriculation to the grave. Surely it is worthy of serious consideration.

E. G. Cheyney
College of Forestry,
University of Minnesota

EDUCATIONAL EVENTS

BUSINESS FELLOWSHIPS AT NEW YORK UNIVERSITY

An announcement has just been issued by Professor Jeremiah W. Jenks, director of the Division of Public Affairs, which calls attention to the unusual opportunity which New York University will offer next year to combine practical business experience with scientific commercial training. According to the announcement, New York University has arranged to cooperate with a number of important business organizations under plans adapted to suit individual cases, in offering to a limited number of college graduates positions which will enable them to combine scientific study of business principles with actual business practise. These openings are available for men who have specialized in any one of several different lines. Some of the companies, such as the United States Steel Corporation, prefer men trained in mechanical or chemical engineering; others, like the National City Bank, American Telephone and Telegraph Company, and the Ingersoll Watch Company, prefer a thorough training in mathematics, economics and commercial geography. Most houses engaged in the foreign trade wish men with a knowledge of the language of the country in which they are extending their business. They wish to fit men for business in Russia, South America, India and China, as well as in the United States.

The companies usually will pay men employed under this plan a sum sufficient to cover living expenses and university tuition, say sixty to seventy-five dollars a month. This sum payable monthly throughout the year, is offered as a university fellowship. The holder is to give at least one half his time during the college year and full time during the summer vacation to practical work in the business establishment, where he will be given the opportunity of learning in practise different phases of the business, so as to qualify him eventually, if he is of the right caliber and character, for an important executive position. The remainder of his time is to be devoted to business subjects in New York University.

Each man is to be considered individually, his work and studies being adapted to his needs and those of his employer.

The contract will cover a calendar year, but is renewable with usually an increase in pay. It is hoped that the men will show sufficient ability and character so that when their training is completed—in from one to three or four years—they will be fitted to take important permanent positions in the employ of these companies.

UNIVERSITY EXTENSION IN MASSACHUSETTS

DR. DAVID SNEDDEN, commissioner of education and a member of the governor's "advisory committee" of five members, named to draft a bill to provide for university extension work in line with the recommendation contained in the governor's inaugural message, has submitted to the committee on education a tentative draft of a bill. The committee has been given to understand that a special message from the governor on this subject may be received by the legislature at a later date. The tentative draft of the bill reads as follows:

Section 1. The board of education is hereby authorized and directed to establish and administer under such rules and regulations as shall be determined by the board, and at such centers as, after investigation, it shall deem desirable, university extension and correspondence courses for the benefit of residents of Massachusetts.

Section 2. The board of education is hereby authorized to employ a third deputy commissioner, who, under the direction of the commissioner of education, shall have general charge and direction of all investigations relative to the establishment of university extension and correspondence courses, and who shall supervise and administer, on behalf of the board, the conduct of such courses. The board may also employ such agents, lecturers, instructors, assistants and clerical service as may be necessary for a proper compliance with the provisions of this act. With the approval of the governor and council it may rent suitable offices for the conduct of the work provided for in this act.

Section 3. (*a*) The board of education is hereby empowered, with the consent of the town or city officials or committees having said buildings in charge, to use the schools or other public buildings of any towns or cities within the commonwealth, and also to use normal or other school buildings owned or controlled by the commonwealth, for the purpose of such university extension or correspondence courses. (*b*) City or town officials or committees having in their charge or under their control school or other public buildings are hereby authorized to allow the use of such buildings by the board of education for the purposes of university extension or correspondence courses, subject to such rules and regulations as the officials or committee shall establish. It is provided, however, that such use shall not interfere or be inconsistent with the use of said buildings by the town or city public schools.

Section 4. (*a*) The board of education is empowered to appoint an advisory council on university extension and correspondence courses, the functions of which shall be defined in the rules and regulations of the board. (*b*) The board of education is empowered to appoint local advisory councils at each center where university extension or correspondence courses are maintained. The local advisory councils shall from time to time make recommendations to the board of education in regard to the establishment and administration of university extension and correspondence courses.

Section 5. The board of education, for the purpose of complying with the provisions of this act, may be allowed for the salary of the third deputy commissioner, agents, lecturers, instructors, assistants and clerical service, and for traveling and other necessary expenses of these officers, incurred in the performance of their official duties under this act, such sums as shall be appropriated.

EDUCATIONAL NOTES AND NEWS

DR. CARL G. DONEY, since 1907 president of West Virginia Wesleyan University, has been elected president of Williamette University, Oregon.

PROFESSOR ALBERT CARNOY, who held the chair of comparative philology in the University of Louvain, has reached New York. He will lecture at Columbia University on Oriental languages.

DR. IRA REMSEN, president emeritus of Johns Hopkins University, will deliver the principal address on the occasion of the dedication of the new chemistry building of the University of Minnesota which will take place on May 24.

SPEAKERS at the dinner of the alumni of the

New York City College, in honor of President Mezes, which took place on April 10 were Mr. Lydecker, the chairman of the board of trustees; Mr. George McAneny; Mr. Edward M. Colie, of the class of '73; Professor Stephen P. Duggan, of the class of '90, and Dr. Mezes. Justice Greenbaum presided.

Princeton University has established a permanent lectureship on the nature of Christianity, and Dr. Francis Landey Patton, formerly president of the university, has accepted the invitation of President Hibben to become the first incumbent. Dr. Patton has chosen as the subject of his course, "Christianity and the Modern Man." The titles of the various lectures are: "Philosophical Presumptions of Christianity," "The Apologetic Basis of Christianity," "The Fundamental Concepts of Christianity."

The resignation of Professor William C. Poland, who has been professor of history of art at Brown University since 1892, has been presented to the executive committee of the corporation. Professor Poland will retire upon pension as emeritus professor at the close of the present year. He has taught continuously at Brown University for 45 years.

At Princeton University Dr. George Harrison Shull, botanical investigator of the Cold Spring Laboratory, Carnegie Institution of Washington, has been elected professor of botany; Dr. Carl T. Compton, of Reed College, Portland, Ore., assistant professor of physics; Dr. Chalfant Robinson, Dr. Clifton R. Hall and Dr. Walter P. Hall, assistant professors and preceptors in history and politics, and Dr. Donald B. Durham, assistant professor and preceptor in classics.

Professor Francis Horton Colcock, LL.D., has placed in the hands of the trustees his resignation as dean of the department of mathematics at the University of South Carolina.

Dr. Ada E. Miller has been appointed lecturer on school hygiene by the Edinburgh Provincial Committee for the Training of Teachers, in succession to Dr. I. Douglas Cameron, who has resigned.

Mr. Seumas MacManus delivered the annual Phi Beta Kappa address before the Ohio Wesleyan chapter and invited guests on March 20. His subject was "Irish Fairy and Folk-Lore." Professor E. A. Ross, of the University of Wisconsin, delivered three lectures on the Clason foundation shortly before the Easter recess. His topics were, "Sub-tendencies of American Life," "The Spirit of South America," and "The Problem of Immigration."

Professor Vaughan MacCaughey, of the College of Hawaii, Honolulu, will be upon the mainland during the coming summer. He will visit a number of the eastern universities, and will represent Hawaii at the meetings of the National Education Association and of the American Association for the Advancement of Science. His headquarters will be the Chautauqua Institution, New York.

Dean Shailer Mathews, of the Divinity School at the University of Chicago, who has just returned from a mission to Japan in the interest of cordial international relations, was among the speakers at the convention of the Central Illinois division of the State Teachers Association which met in Normal, April 2 and 3. The subject of his address was "The School as a Center of Social Idealism."

Just as the smallpox at the University of Illinois seemed well under control, over fifty students developed mumps. At present one new case of smallpox has appeared. The other four cases are now convalescent.

The results in the interfraternity scholarship contest for the first semester have been announced by Dr. W. G. Leutner, dean of Adelbert College, Western Reserve University, Delta Upsilon winning first place and Beta Theta Pi, second place. The contest is held under the auspices of the Pan Hellenic Association, which includes the nine national fraternities in Adelbert College of Western Reserve University. A trophy is afforded at the close of each semester to the fraternity whose members have won highest grades during the semester.

Ashburnham House, a boy's dormitory at Cushing Academy, Ashburnham, Mass., was

burned early in the morning of April 12. Mr. Frank L. Hardy, director of athletics, is reported to have perished.

MR. FRANCIS FRENCH WILSON, associate headmaster and teacher of classics, of the Columbia Grammar School, New York City, has died at the age of seventy-one years.

THE death occurred on March 23, at fifty-three years of age, of Dr. S. G. Rawson, principal of the Battersea Polytechnic, London. Dr. Rawson was lecturer in chemistry at University College, Liverpool, and in 1895 he was appointed principal of the Technical College, Huddersfield. In 1903 he was appointed director of education to the Worcestershire County Council, and in September, 1907, he became principal of the Battersea Polytechnic.

IN the new academy building in process of construction at Exeter there will be placed a tablet in memory of Harlan P. Amen, late principal of the Phillips Exeter Academy. The chairman of the committee which secured the tablet and prepared the inscription was Dr. Amen's classmate, President W. DeW. Hyde, of Bowdoin. It reads as follows:

In Memory of
HARLAN PAGE AMEN, A.M., Litt.D.,
Seventh Principal of the Phillips Exeter Academy
1895–1913
Upbuilder of Ideals and Resources
Teacher and Leader of Teachers
Helper of Boys to be Men
Modest Zealous Thorough Righteous
He wrought with tireless hand through crowded days
Like one who hastened lest the eternal sleep
Should steal upon him ere his work was done

IT is reported from Delhi that on March 22 Sir Harcourt Butler introduced in the Imperial Legislative Council a bill for constituting a teaching and residential university at Benares, with special facilities for instruction in the Hindu religion. He referred to the plan as the commencement of a new era in university organization in India.

THE new Arnold Biological Laboratory at Brown University was opened to classes on April 8. Its total cost was over $100,000, of which $80,000, the legacy of Dr. Oliver H. Arnold, of Providence, R. I., represented the savings of a life time of a quiet physician with a country practise. The new building will serve nearly 400 students, including a number of graduates. Forty-two per cent. of the degrees of Ph.D. granted at Brown in the past ten years have been taken in the department of biology.

THE will of the late Miss Mary Elizabeth Garrett leaves the residuary estate, probably of several million dollars, to Miss M. Carey Thomas, president of Bryn Mawr College, a lifelong friend of Miss Garrett, for her use, entirely without condition. The will states, however, that Miss Garrett and Miss Thomas had been associated in the work for higher education of women, and that Miss Garrett was sure that Miss Thomas would make wise use of the funds. Miss Garrett bequeaths to the Bryn Mawr School for Girls, of Baltimore City, the lot of ground now occupied by it, together with the buildings and releases the school from indebtedness to her, which occurred in the early years of the school, previous to 1902, amounting to about $65,000. She gives her residence, southwest corner of Cathedral and Monument streets, after Miss Thomas's death, to the Johns Hopkins University as part of the permanent endowment of the Medical School. If Miss Thomas had died before Miss Garrett, the Johns Hopkins University would have been the residuary legatee.

AFTER the meeting of the trustees of Princeton University on April 8 it was announced that a gift of $125,000 had been received from Mrs. William Church Osborn, of New York, to establish the Dodge professorship of medieval history, the chair to be held by Professor Dana Carleton Munro, who was elected professor of medieval history at the January meeting of the board, and that an anonymous gift of $100,000 had been received to establish a professorship in economics. In addition, it was announced that $49,864.25 had been received for endowment and $56,338.51 for current expenses, since the January meeting of the board. The committee appointed at the January meeting to raise $250,000 to se-

cure Mrs. Russell Sage's conditional subscription of $250,000 toward the erection of the new dining-halls, reported that subscriptions amounting to $200,774 had already been secured, making it virtually certain that the total amount would be raised and the dining-halls built.

THE New Hampshire senate has passed a bill which appropriates $164,000 for New Hampshire College. This amount is in addition to the $14,000 provided under the statutes.

UNDER the will of the late General Charles H. Pine, Yale College will eventually receive an addition of $150,000 to the $50,000 scholarship fund established by General Pine about three years ago. The will also provides for the creation of a fund of $250,000 to be devoted to manual training of Ansonia boys and girls.

BY the will of General William D. Gill, of Baltimore, the Johns Hopkins University is made residuary legatee after the death of his wife. The bequest is to be used for the establishment of a chair of forestry.

THE sum of $25,000 has been contributed by Mr. P. S. du Pont toward the University of Pennsylvania Museum extension building fund, which now amounts to more than $100,000. As soon as the fund amounts to half a million dollars, the building of the next extension will be started.

THE collection of Browning memorabilia, secured by Dr. F. W. Gunsaulus, of the class of 1875, has recently been installed in the Slocum Library of Ohio Wesleyan University. The collection includes a portrait of Robert Browning painted by Felix Moschelles in 1889; some rare first editions of the poetry of both Robert Browning and Elizabeth Barrett Browning; a number of books from the Browning library among which is a complete set of Plato, eighteen volumes, containing marginal notations by both the Brownings and the original slips used by them as bookmarks; and several rare pieces of marble and pottery from Greek, Alexandrian and Assyrian sources which Browning had collected and cherished. Dr. Gunsaulus has also established a lectureship on the poetry of Browning, providing for one lecture annually on the subject.

PROFESSOR J. PAUL GOODE, of the University of Chicago, has just issued the map of Africa in two forms, physical and political, and the fourth pair in the series of wall maps for colleges and schools upon which he has been at work for some years. The maps are 46 x 66 inches in size, the physical map printed in twelve colors, the political map in nine colors. These maps are entirely new, from original sources, and represent an earnest effort to achieve the highest quality of work in the map makers art.

THE eleventh annual session of the Association of Ohio Teachers of Mathematics and Science met in the Chemistry Building, Ohio State University, on April 2 and 3.

THE Southwestern Anthropological Society was organized on March 27, at Santa Fe. The report of the organization committee was unanimously adopted and Dr. Livingston Farrand, president of the University of Colorado and formerly professor of anthropology at Columbia University, was elected president. Dr. F. E. Mera was elected vice-president; Paul Radin, secretary, and Judge R. H. Hanna, treasurer. The members of the committee of research elected were Professor P. E. Goddard and Mr. Niels Nelson, of the American Museum of Natural History, New York City; Professor Franz Boas, of Columbia University; Professor A. L. Kroeber, of the University of California; Professor A. Tozzer, of Harvard University and Mrs. Stevenson, of the Bureau of American Ethnology. Drs. Farrand and Radin are ex-officio members of this committee.

THE annual Educational Conference at the University of Chicago of the academies and high schools in relation with the university will be held on April 16. This is the twenty-seventh conference of a similar character and is expected to have especial interest and significance to educators. At the general session on Friday afternoon in Leon Mandel Assembly Hall, Dr. Arthur E. Bostwick, librarian of the St. Louis Public Library, will be the first speaker, his subject being "School Libraries

and Mental Training," and Matthew S. Dudgeon, secretary of the Wisconsin Free Library Commission, will also give an address on "Getting the Most Out of Books." On the same afternoon will take place the written examination of contestants for the prizes in American history, botany, English, French, German, Latin, mathematics and physics. Following the general session the Departmental Conferences will be held, including those on art, biology, commercial education, earth science, English, French, Greek and Latin history, home economics, manual arts, mathematics, physics and chemistry, physical education and public speaking. The general subject of the Departmental Conferences will be "The Relation of the Organized Library to the School." At the supper and conference for administrative officers topics for discussion will be presented with reference to college credits, by Dean James R. Angell, of the Faculties of Arts, Literature and Science in the university, and Principal Franklin W. Johnson, of the University High School. The conference will end its sessions with the annual contest in Public Speaking, to be held in Leon Mandel Assembly Hall on the evening of April 16. A large number of principals, superintendents, librarians and members of high-school and academy faculties are expected to be in attendance at the conference.

A SURVEY of the structure and working of the New York City government is being given this month in a series of lectures at Columbia University under the auspices of the Academy of Political Science, with the cooperation of the New York Bureau of Municipal Research, the Columbia University Institute of Arts and Sciences and a citizens' committee. The lectures are held in Havemeyer Hall at 4:15 P.M., on the following dates:

April 7—"The Office of Mayor; Coordination and Executive Control of City Administration; Board of Estimate and Apportionment," Mayor Mitchel; discussion led by Dr. F. A. Cleveland, director, Bureau of Municipal Research.

April 9—"Public Health and Sanitation," Dr. S. S. Goldwater, health commissioner; discussion by Homer Folks and Dr. George O'Hanlon.

April 12—"Police and Fire Administration," Police Commissioner Woods and Fire Commissioner Adamson; discussion by Clement J. Driscoll.

April 14—"Charities and Correction," John A. Kingsbury, commissioner of charities, and Dr. Katharine B. Davis, commissioner of correction; discussion by Professor Edward T. Devine.

April 16—"Education, Parks and Recreation," Dr. William H. Maxwell, superintendent of schools, and Cabot Ward, president Park Board; discussion by Thomas W. Churchill.

April 19—"Financial Administration, Budget and Tax Rate," William A. Prendergast, controller; discussion by Thomas W. Lamont, of J. P. Morgan & Co., and Professor E. R. A. Seligman.

April 21—"Highways, Street Cleaning and Public Works," Douglas Mathewson, borough president of the Bronx; discussion by John T. Fetherston, commissioner of street cleaning; Lewis A. Pounds, borough president of Brooklyn, and Marcus M. Marks, borough president, Manhattan.

April 23—"The Administrative Organization of the Courts," Judge William McAdoo; discussion by Judge William L. Ransom and George W. Alger.

April 26—"The City Charter," George McAneny, president board of aldermen; discussion by Thomas I. Parkinson.

April 28—"Transportation, Port and Terminal Facilities," Mayor Mitchel; discussion by R. A. C. Smith, commissioner of docks and ferries, and M. R. Maltbie, public service commissioner.

IT is stated in *Nature* that the first annual report, for the period ended December 31, 1914, submitted by the executive committee to the trustees of the Carnegie United Kingdom Trust has been published. Mr. Carnegie during many years prior to 1912 gave large sums to local authorities for the erection of public libraries, and to churches for the acquisition of organs. As the applications for these grants increased and their administration became more difficult, Mr. Carnegie decided to place the future administration of grants under the control of a permanent body of trustees. In 1913 he placed £2,000,000 in trust so that the income of about £100,000 a year should be available "for the improvement of the well-being of the masses of the people of Great Britain and Ireland." The report is full of interesting particulars, but attention can be directed only to a few typical facts. Organ grants are to be discontinued for the present. Mr. Carnegie has already ex-

pended £550,000 in this direction in the acquisition of some 3,500 instruments. A total expenditure of nearly £2,000,000 has been incurred already on the erection of public libraries in the United Kingdom. The executive committee has, we notice, intimated to the authorities of the Household and Social Science Department of King's College for Women, London, that it is prepared to meet half the cost of the erection of a library building, on certain conditions. The committee has also made an offer in the direction of endowment to the Central Bureau for the Employment of Women. The report throughout gives the impression of wise and sympathetic administration of a princely endowment.

The University of Minnesota has recently issued a pamphlet concerning practise teaching. This pamphlet is a report of a joint committee composed of five representatives from the city schools of Minneapolis and two from the college of education of the university, with Superintendent Spaulding and President Vincent members ex-officio. The city schools and the college of education are trying out a plan of allowing a semester of observation and practise teaching to be done by university students working in the city schools, in either the high schools or the seventh and eighth years of the grades. There are fifty university students doing such work the present semester. The pamphlet is entitled "A Syllabus on Practise Teaching." It includes a statement of the method of procedure which students must follow, both in assignment to the work and in completion of the work for credit; a suggestive outline for observation; and a statement of some factors to be considered in judging student teachers. Any one wishing a copy of this pamphlet should send their request to Raymond A. Kent, principal University High School, Minneapolis, Minn.

A short course in clinical pathology and bacteriology will be offered graduate physicians of Missouri by the University of Missouri, at Columbia, May 3 to 29. It is the third lecture and demonstration course offered to physicians by the School of Medicine. Opportunity will be afforded to practitioners to become acquainted with the latest diagnostic and therapeutic methods in bacteriology and with the development of pathology in its relation to clinical medicine. The underlying principles will be discussed in lectures, but the particular aim of the course will be to illustrate these principles and to show the technic by demonstration and experiment. The work will be so arranged that those who are unable to attend the entire course may come for a shorter time and get certain phases of it. One of the reasons for selecting the spring as the time for the course is that the classes in the school of medicine will be in regular session. All the regular lectures, in addition to the special course, will be open to physicians attending the session. The following teachers will be in charge: David Hugh Dolley, professor of pathology; Mazyck P. Ravenel, professor of medical bacteriology and preventive medicine; Martin Dupray, instructor in bacteriology and preventive medicine, and Floyd August Martin, instructor in pathology.

DISCUSSION AND CORRESPONDENCE

GENERAL SCIENCE TEACHING

To the Editor of School and Society:

Permit me to call attention to what I conceive to be a possible, if not a probable, misinterpretation of one point in Commissioner Snedden's excellent article on criteria of aim and method in general science teaching, found in School and Society for March 27. The inference is easily made—and is actually very often made—that because "General science . . . should purposely and consistently ignore those historic classifications made by mature and trained minds, and even the terms describing such classifications," teachers of this sort of work may safely be ignorant of the sciences and wholly neglect them in their preparation for teaching. By all means, it is often said or implied, let the teacher and the learner together come into the presence of human activities and accessible natural phenomena in a state of naïve innocence, ignorant alike of what others have found and of what they are likely to find in these phenomena and activities. And there is one aspect of the question that seems to make this view plausible. It is said that teachers of somewhat complete scientific training find it diffi-

cult to "ignore the historic classifications made by mature and trained minds," and, especially, "the terms describing such classifications." These have become to them a part of science itself. Such is not my own experience. The tyranny of words and terms and formulæ rests most heavily upon the ignorant. The one who really knows has two advantages over the one who is ignorant. First, he knows many paths to knowledge, and how to choose between them. Then his knowledge is a vivid reality to him and not dependent upon any form of words. He knows nothing that he can not tell in the language of the fireside or the playground. It is the sciolist to whom the word is sacred. When a teacher brings her class into the presence of what Clifford happily calls "the human universe"—the universe in relation to man—the uninstructed teacher is so overwhelmed by the variety of objects, and embarrassed by the questions of her pupils, that she perforce flies to her manual and delivers to her pupils the only thing that she can find there, the "terms" and "principles" of science—practically the only teaching now found in the science work of "the grades." If even the university graduate in science rarely attains complete linguistic freedom what can we expect of one who knows only the world of books and to whom the world of men and things has as yet been unrevealed. It seems to me that after high human, social and personal qualifications we should insist upon some knowledge of several, and thorough scholarship in one, science as preparation for teaching general science. Who can doubt that it is far easier to teach a single highly standardized science in the advanced grades of the high school than to do the science work well in one of the lower grades?

And it should be remembered that general science in the junior high school can never be thought highly of, or much encouraged in the senior high school or the universities. It does not form a true tripos, or examination subject; it fits to nothing; you can not build upon it.

E. A. STRONG

YPSILANTI, MICHIGAN,
April 6

BOOKS AND LITERATURE

EDUCATIONAL JOURNALS

THE contents of several current educational journals are as follows:

Journal of Educational Psychology, March

The importance of social status as indicated by the results of the point scale method of measuring mental capacity: Robert M. Yerkes and Helen M. Anderson.

A psychological study of bright and dull pupils: W. H. Pyle.

The value of mental age tests for first grade entrants: Vinnie Crandall Hicks.

The measurement of efficiency in spelling, and the overlapping of grades in combined measurements of reading, writing and spelling: Daniel Starch.

Editorial; Notes and news; Publications received.

Manual Training and Vocational Education, April

The protocol and industrial education: Julius Henry Cohen.

The analysis of an occupation: M. E. Haggerty.

Two units of manual training for high schools (illustrated): Ira S. Griffith.

Domestic art in time of war (illustrated): Idabelle McGlauflin.

Lockers for unfinished work (illustrated): Albert F. Siepert.

Editorial; Of current interest; Shop notes and problems; Reviews.

The English Journal, April

The notebook as an aid to efficiency in English classes: Charles R. Gaston.

The relation of moving pictures to English composition: Carolyn M. Gerrish.

No set requirement of English composition in the freshman year: Charles R. Osgood.

The enumerative order: Emerson Grant Sutcliffe.

English in a normal school: Herbert E. Fowler.

Training children to read good literature: Lucy M. Gardner.

Making Palgrave palatable: Andrew H. Krug.

The round table; Editorial; News and notes; Book notices.

The Journal of Home Economics, April

The visiting housekeeper: M. Adelaide Nutting.

Instructive inspection: Ellen H. Richards.

The work of the visiting housekeeper: Frances Stern.

Excerpts from annual reports of charitable organization societies showing development in visiting housekeeping: Emma Winslow.

The Hiram House model cottage: a social settlement: Laura Gifford.
A girls' trade school course in dressmaking: Mary H. Scott.
Pottery glazes and their solubility: C. F. Langworthy.
Indoor humidity: L. R. Ingersoll.
Notes on Ellen H. Richards memorial fund.
Editorials.
Housekeepers' department; Bibliography for home economics literature; Books and literature; News from the field.

QUOTATIONS

WHAT IS AT STAKE AT WISCONSIN'S UNIVERSITY?

THE *Evening Post* prints the last of the series of articles in which our special correspondent has presented a picture of the situation which confronts the University of Wisconsin. That situation is by no means simple; it may at least be said, however, that according to present appearances the danger of serious injury to the university is far less than, a short time ago, there seemed reason to apprehend. What the legislature will actually do is still uncertain; but already some things have emerged which would seem to render it very improbable that any measure of crude innovation or violent disturbance will be adopted. The Allen "survey" appears to have found little acceptance in responsible quarters; and, more encouraging still, the Wisconsin Board of Public Affairs and the Citizens' Advisory Committee that sat with it have made a report which, while naturally containing some criticisms, appears to stand by the university in all the essentials of the controversy.

Nevertheless, it would be rash to assume that all danger of serious injury to the great institution at Madison is past; so long as the issue remains unsettled, the situation will deserve watching on the part of all who are interested in higher education in America. Moreover, if the university shall come out unscathed, it will not do to adopt the complacent conclusion that storms of this kind are always sure to blow over. The Wisconsin university had established itself so firmly as an object of affection and pride among the people of the state, and its alumni alone constitute so large and influential a section of the population, that it may well be supposed to have possessed unusual powers of resistance to attack. Whatever the outcome the episode should serve as a reminder of the kind of danger to which state universities in our democracy are everywhere exposed.

The fundamental difficulty relates to nothing less than the very nature of a university. On the face of it, there would seem to be no reason why a legislature, newly elected every two years and coming to its task with little or no preconceived idea of what a university is or ought to be, should not be the prey of any plausible agitation on the subject. In this Wisconsin case the bill that was at first most conspicuous was one proposing to abolish the board of regents and to place the whole administration of the university—along with all the rest of the educational system of the state—into the hands of a state board of education. To a "plain, practical man" this might easily seem very sensible; although to any one who understands the nature of a university, it is evident that any such scheme must be fatal to all that is most valuable and distinctive in its activities.

As to the general scope and purpose of a university, it may be necessary or proper that the lines shall be broadly laid down from the outside; but in the conduct of its activities—in the choice of professors and in the lines and methods of their work—the university must be an independent and self-directing body. To think of the professors as men hired to execute prescribed tasks in ways determined by an administrative body is to strike at the very heart of university life. There is involved here, almost inevitably, the question of academic freedom in the sense of freedom of opinion; but, great as is the importance of this, it is only a secondary and incidental element in the case. First of all comes the question of intellectual individuality. It is only in regard to subjects that bear upon politics, economics, ethics or religion that the question of freedom of opinion plays any serious part;

the question of individuality of the free play of the professor's intellect, is present in every department. The mere consciousness of possible meddling by a supervisory body would have a paralyzing effect; and in the course of not a long time it would inevitably drive out of the professorial calling the talents and the personalities most to be desired in it.

If, as now seems almost certain, no such scheme will find countenance in the Wisconsin legislature, this must be ascribed to the good sense of those who, knowing little about the matter themselves, are willing to follow the judgment of men who do know. And the same may be said about the Allen "survey." As regards the latter, however, we ought not to be content with its mere failure to work immediate mischief. Nor should such failure be looked upon as related solely to any errors or shortcomings of this particular investigator. The very idea of a survey of this nature is repugnant to the idea of a university. The notion has broken out at various places during the last few years. If the methods of a university need looking into, let them be looked into by some man or body of men inspired by ardor for the highest university ideals, saturated with knowledge of what universities have done and have aimed to do, and possessed of such insight and judgment as to command respect for their opinions and conclusions. To prod the faculty with a vast miscellaneous assortment of questions, and to attempt to extract wisdom out of the answers by a mechanical process of summation, is a childish and mischievous futility. If the Wisconsin experience shall have brought this truth home to persons who have been thinking of engaging in similar adventures, it will not have been gone through in vain.—New York *Evening Post*.

PRELIMINARY REPORT OF THE JOINT COMMITTEE ON ACADEMIC FREEDOM AND ACADEMIC TENURE

AT the December, 1913, meeting of the American Economic Association, the American Sociological Society and the American Political Science Association, this identical resolution was adopted:

Resolved, That a committee of three be constituted to examine and report on the present situation in American educational institutions as to liberty of thought, freedom of speech, and security of tenure for teachers of economics (sociology, or political science).

That the committee be authorized to cooperate with any similar committee that may be constituted by other societies in the field of political and social science.

The three committees appointed in virtue of these resolutions subsequently decided to merge into a joint committee on academic freedom, of which Professor Seligman was elected chairman and Professor Lichtenberger secretary. The report herewith presented to each of the three associations is the report of this joint committee.

Your committee has held several meetings at which the general problems were discussed and has investigated several cases of alleged infringements of academic freedom. As a result it became apparent that the subject bristled with complexities of such a character that your committee feels itself in a position at present to make only a preliminary report.

It is important at the outset to remove misapprehensions as to the function of the committee. This function, as we understand it, is not that of a merely protective organization or professional trade-union. It was for this very reason that it was made to include publicists and lawyers as well as professors. Its object, as understood by us, is to point out the public rather than the private importance of the problems and to emphasize the duties as well as the rights of all parties concerned.

The public relations of academic freedom, apart from the teachers involved, are fivefold; to science, to the student body, to the trustees, to the presidents, and to the community at large.

1. The modern university is the chief home of science. The aim of science is to discover new truth, but every new truth means the disappearance of old error and frequently involves a shock to existing opinion. The shock may be unwelcome, but unless there be the fullest freedom in scientific investigation and in the

proclaiming of its results, there can be no progress.

2. The student body in our institutions of learning possesses the right of having presented to it the latest results of scientific research, whether or not those results have as yet been firmly incorporated into the body of accepted truth.

3. The trustees of such institutions are interested in the problem of academic freedom because with the possible conflict in their minds between the claims of the general principle and the immediate welfare of the institutions committed to their charge a clearer understanding of mutual rights and duties should be helpful.

4. The presidents of our institutions of learning are sometimes in a difficult position because of their double capacity, representing both faculty and trustees. When there is an honest difference of opinion as to the extent and limits of academic freedom it is just as likely that the president may need support against the trustees as that he may act as their mouthpiece in opposition to the faculty.

5. The community at large has a right to expect of its institutions of learning, whether maintained by public contributions or supported by private munificence, the best results of scientific achievement, unhampered by party bias or personal prejudice.

The difficulties of the problem referred to above involve current misunderstandings both as to the nature and limits of academic freedom and as to the fundamental theory of academic tenure of position.

Let us examine first the question of academic freedom or liberty of thought. This problem, it may be stated at the outset, does not exist in colleges under obligations to teach denominationalism, nor in institutions designed to spread specific doctrines of any kind. It is important, however, that such institutions should not be allowed to sail under false colors. Freedom of thought and the inculcation of a particular brand of thought are hopelessly irreconcilable.

If by liberty of thought is meant freedom of research, the necessity of its existence without any limits is so obvious as to be entirely indisputable. So slight, however, is the danger of its infringements in the American institutions of to-day that this aspect of academic freedom calls for no further discussion.

The situation is different when we come to the other phase of academic freedom, namely, freedom of speech or liberty of expressing in spoken or written word the results of scientific research. In past centuries the chief menace to freedom of this kind was theological; in recent times, with the advent of democracy in politics and industry, the danger zone has been shifted to economics, political and social science.

The motive for infringing such freedom may be either private or public. In our privately endowed institutions it rarely if ever happens that an attempt is made to limit academic freedom because of threatened injury directly to the individual interests of the authorities. More common is the public or social motive, based on the desire of the authorities to prevent the spread of ideas or influences which are in their opinion harmful to true morals, sound politics, or the real social interests. In between these private and these social motives lies a large field where the motive asserted and believed by the authorities may be social in character and yet where in reality their own interests or those of their friends are implicated. In the political, economic and social field almost every question, no matter how large and general it at first appears, is more or less affected with private or quasi-private interests; and, as the governing body is naturally made up of men who through their standing and ability are personally interested in the private enterprises, the points of possible conflict are numberless. When to this is added the consideration that most of the benefactors as well as the parents who send their children to privately endowed institutions themselves belong to the more conservative class, it is apparent that a similar pressure may, however unconsciously, sometimes be brought to bear upon the academic authorities.

On the other hand, in our state institutions the danger is the reverse. Where the university is dependent for funds upon legislative favor, it has not infrequently happened that

the conduct of the institution has been affected by political considerations; and where there is a definite governmental policy or a strong public feeling on economic, social or political questions, the menace to academic freedom may proceed from the expression of views that in the particular political situation are deemed ultra-conservative rather than ultra-radical.

The real point of danger, hence, is not so much the particular shade of opinion as that it differs from the one entertained by the authorities. The problem resolves itself into one of departure from accepted standards; whether the departure is in the one direction or the other is immaterial.

In considering this problem six classes of difficulties present themselves. The first query is as to whether the identical rule ought to be applied to our colleges as to our universities. In a true university there may be a dozen instructors teaching various aspects of the same subject and ranging in their views over the entire gamut of opinion. The student has his choice and balances the idiosyncrasies of one scholar against those of another. In a small college, where there may be only a single instructor to cover the entire field, not only are the students apt to be much more easily influenced in their general point of view, but the reputation of the college itself is more likely to be affected by the opinions of any member of the faculty. There is, indeed, everywhere a danger line; but is the line not somewhat further removed in the one case than in the other?

Secondly, irrespective of the distinction between a college and a university, ought not different rules to be applied to graduate and undergraduate instruction, to teachers of immature, as compared with those of more advanced, students? Is it not true that the more youthful the class of students, the greater is the teacher's obligation to present scientific truth with discretion and with some regard to their character-building? Should the rule of academic freedom in all its rigor not be limited to the instructor of the more mature and advanced students, whose character has largely been formed and who are in the proper attitude to receive truth for truth's sake? Is not much of the unclearness in the present situation due to the failure to distinguish between classes of instructors?

Thirdly, ought the same rule to apply to the specialists and to the non-specialists? Within the university this problem can not arise, for the views of a biologist on the tariff or of a physicist on socialism would be of no interest to any of his students. But if the biologist should give a public address on some economic question or if the physicist should take part in a political campaign, ought interference with this to be considered as an infringement of academic freedom?

Fourthly, as to the instructor speaking on his own chosen topic, ought a distinction to be made between the opinions expressed within the class-room or lecture-hall and those expressed on the outside? The opinions of a scholar in a lecture-room indeed ought to be considered privileged. Discussions in the class-room are not supposed to be formal utterances for the public at large. They are often designed to provoke opposition or to arouse debate. There should be no room for sensational newspaper quotations from such remarks. In foreign countries it is a misdemeanor to publish or otherwise to quote a university lecturer without his consent. Ought not such a practise to be observed in this country?

The specialist may, however, speak on the subject outside of the class-room, either with the students informally or in a scientific address or in a popular talk. He may, in the exercise of the ordinary duties of citizenship, take part in politics, and may even run for office or hold office.

To what extent and under what conditions ought this to be permitted? Does the possession of special opportunities of study and presumably of special knowledge on political, social or economic questions constitute a reason why one *should* use his information to influence public opinion? Or does it make it desirable, on the contrary, that he should *not* voice his opinions? It may be claimed that an academic teacher who publicly takes a definite stand on a political or economic issue is thereby impairing his reputation for impartiality. Does this, however, not exaggerate

the distinction between intramural and extramural utterances? If within the class-room the scholar discusses a topic in a scientific way, presenting both sides of the question and then drawing his own conclusions, does the mere fact of his expressing these conclusions in public necessarily impair his reputation as a scientist? And has the community not the right to profit by the opinion of the expert, if he really is such?

Fifthly, to what extent should a scholar be expected to make concessions to public sentiment? That there are limits is obvious. A teacher in a southern university might have private views as to the general philosophy of social equality between the white and the colored races; but would he not be injudicious, to say the least, publicly to oppose the overwhelming general sentiment? A sociologist might come to the conclusion that trial marriages were desirable. But could an objection to the public expression of such views properly be called an infringement of academic freedom? Even though experience shows that there is no man or set of men so capable as to be able to decide what academic teachings shall be suppressed as contrary to good morals, can we claim for the academic teacher a consideration which will entirely relieve him from the consequences applicable to all others when they advance opinions for which the popular mind is not prepared and which are at variance with the recognized fundamental standards?

Sixthly, is not the crux of the situation often to be found less in the statement of any particular opinion than in the method of its expression? If the academic teacher takes part in any discussion where public opinion is sharply divided or hostile, is it not incumbent on him sedulously to refrain from extreme or intemperate statement? Can freedom of speech be permitted to cover self-exploitation or mere desire for notoriety? And if a university teacher differs so widely in method of expression from his fellow scientists as to forfeit their confidence in his scholarship and poise of judgment, can he continue to invoke in his behalf the plea of academic freedom?

It is clear, therefore, that there are no rights without duties and that the duties of teacher and of authorities are reciprocal. The duty of the academic authorities is to refrain from confounding their own predilections with what they imagine to be public policy; the duty of the professor is to remember that he is acting not merely as an individual, but as the representative of science.

Various kinds of pressure upon a teacher may be exerted to limit his academic freedom, but it is only the most severe and therefore the most unusual that ever come to public notice, namely, dismissal. Milder disciplinary measures are: warning, transfer to other work, denial of promotion or of increase of salary. The difficulty of ascertaining the existence of such measures is almost insurmountable, inasmuch as other reasons may almost always be assigned by the authorities, such as lack of ability, tactlessness, general incompatibility, etc. If, however, we confine our attention to dismissal we are brought face to face with the most fundamental point in the problem. What is or what should be the nature of the employment and tenure of a college or university teacher?

On one hand the view is more or less frankly expressed or implied by the authorities that academic teaching is a purely private employment, resting on a contract between the employing authority and the teacher. The same authority may dismiss the employees at any time, for any cause, or for no assigned cause whatever; and the contract itself is terminable at the pleasure of the trustees. On the other hand, this is denounced as the "hired man" concept of the subject, destructive to the scientific spirit of the work, and to the dignity of the profession necessary to attract able scholars and teachers. Academic teaching, it is said, must be regarded as a quasi-public official employment in which the original appointment is made by the authorities who are bound to act not as private employers or from private motives, but as public trustees. It is held that only in this way can there be made possible the development of the standards of disinterested scholarship or can there be created a body of scholars and teachers to perform for the community a necessary

function which can not otherwise be achieved. It is a distinctly different service from that of the judge, the lawyer, the journalist, or the ordinary corporation official. It implies a security of tenure, not as a personal privilege, but as an expedient, far-sighted public policy, which, so far as it is consistently followed, attracts high ability into a social service with small pecuniary reward.

Evidently the practise in most cases exemplifies neither ideal of employment, although it ranges from the one extreme to the other. In some of the smaller colleges the private-employment concept is nearly realized. In some of the larger universities the public-employment concept is closely approached. Almost everywhere there is great uncertainty of practise, reflecting great vagueness of conviction on the subject.

It is clear that the farther we get away from the hired-man theory the more definite will be the replies to the queries which we desire here only to formulate.

First, ought an academic teacher ever to be dismissed at all, or ought he to be virtually irremovable, as in the continental universities?

Secondly, ought a distinction to be drawn in this respect between a college and a university teacher, between an officer of high grade and one of low grade; between an officer of long standing and one of recent tenure?

Third, if such a distinction is permissible, ought an academic teacher of long standing ever to be dismissed without the payment of a pension?

Fourth, ought an academic teacher of any grade ever to be summarily dismissed by the authorities without hearing or trial?

Fifth, if there is to be a hearing or trial, ought this to be before the university authorities or before some tribunal representing the general interests of scholarship?

Sixth, ought an academic teacher ever to be dismissed without public declaration of the reasons therefor, and, if not, ought the reasons alleged ever to be a mere pretext, even though the suppression of the real reason is in the supposed interest of the individual himself?

From the foregoing it is clear that there may be differences of opinion as to the ideals to be realized, as to the practicable means of attaining the ideal, and as to the limitations to be observed. Our preliminary investigation of actual cases has brought us to the tentative conclusion that mistakes have been made on both sides and that the chief difficulty arises from a failure of academic teachers as well as of academic authorities to observe the duties no less than the rights of their position. In order, therefore, to enable us to devote more study to the investigation, both in its general aspects and in the particular cases of alleged infringement of academic freedom, we recommend that this committee be continued with a view of making a final report at the next annual meeting.

THE JOINT COMMITTEE
EDWIN R. A. SELIGMAN,
Chairman

AMERICAN ECONOMIC ASSOCIATION
EDWIN R. A. SELIGMAN, *Chairman*
RICHARD T. ELY
FRANK A. FETTER

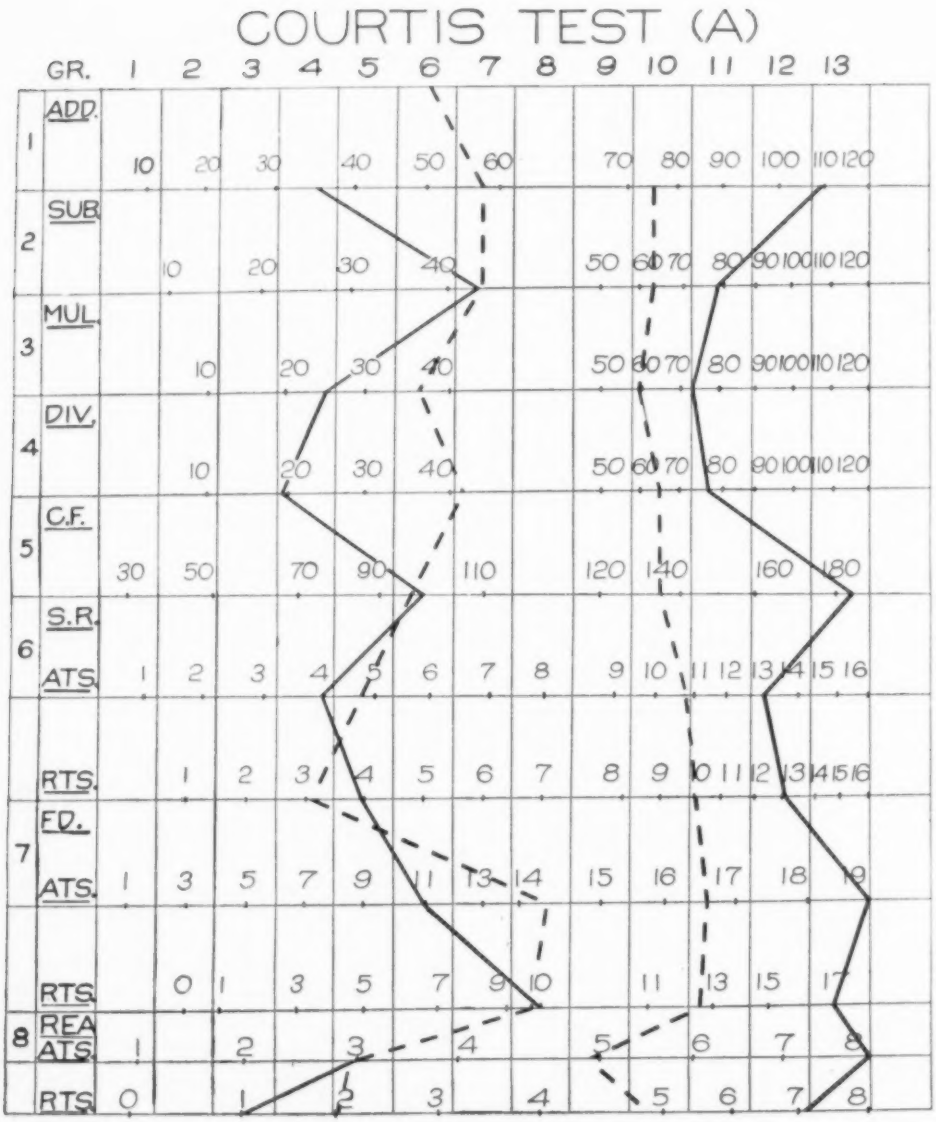
AMERICAN POLITICAL SCIENCE ASSOCIATION
F. N. JUDSON, *Chairman*
J. Q. DEALEY
HERBERT CROLY

AMERICAN SOCIOLOGICAL SOCIETY
U. G. WEATHERLY, *Chairman*
JAMES P. LICHTENBERGER
ROSCOE POUND

EDUCATIONAL RESEARCH AND STATISTICS

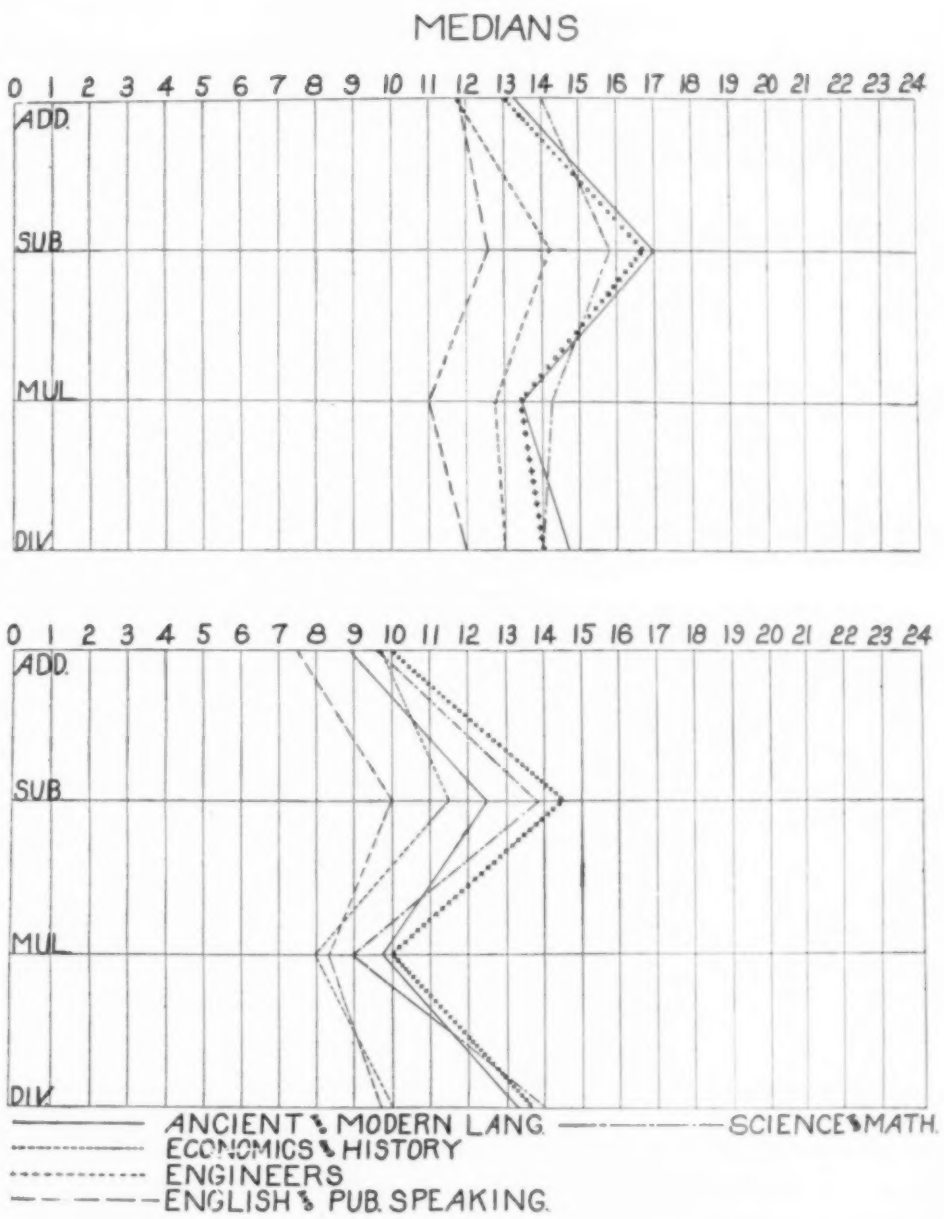
THE APPLICATION OF THE COURTIS TESTS IN ARITHMETIC TO COLLEGE STUDENTS

LAST spring Series A of the Courtis Standard Tests in Arithmetic were given to 54 of our college students in order to ascertain how much arithmetic the average student retains after leaving high school and spending from one to four years in college. The tests also served as a preliminary check on the B series, which were given to 164 students at the close of the year 1914. The A series includes 8 tests as follows: (1) Addition of two figures for speed; (2) subtraction of one-column examples for speed; (3) multiplication of one-column examples for speed; (4) division of one or two numbers for speed; (5) copying figures for



speed and accuracy; (6) a speed reasoning test in which only the name of the operation used in the problem is recorded; (7) a test on all fundamentals for speed and accuracy; and, (8) a test on reasoning for speed and accuracy. The tests are relatively easy, and adapted especially to the capacities of children from the 4th to the 8th grades, although from two to seven of the eight tests have been attempted on other occasions by the children in the three lower grades, and approximate norms have been established for high-school grades. The time element in this series is one minute for six of the tests, twelve minutes for the test in fundamentals and six minutes for the one on reasoning.

In chart 1 are given the range of distribution and the medians for the sixth grade in


MEDIANS
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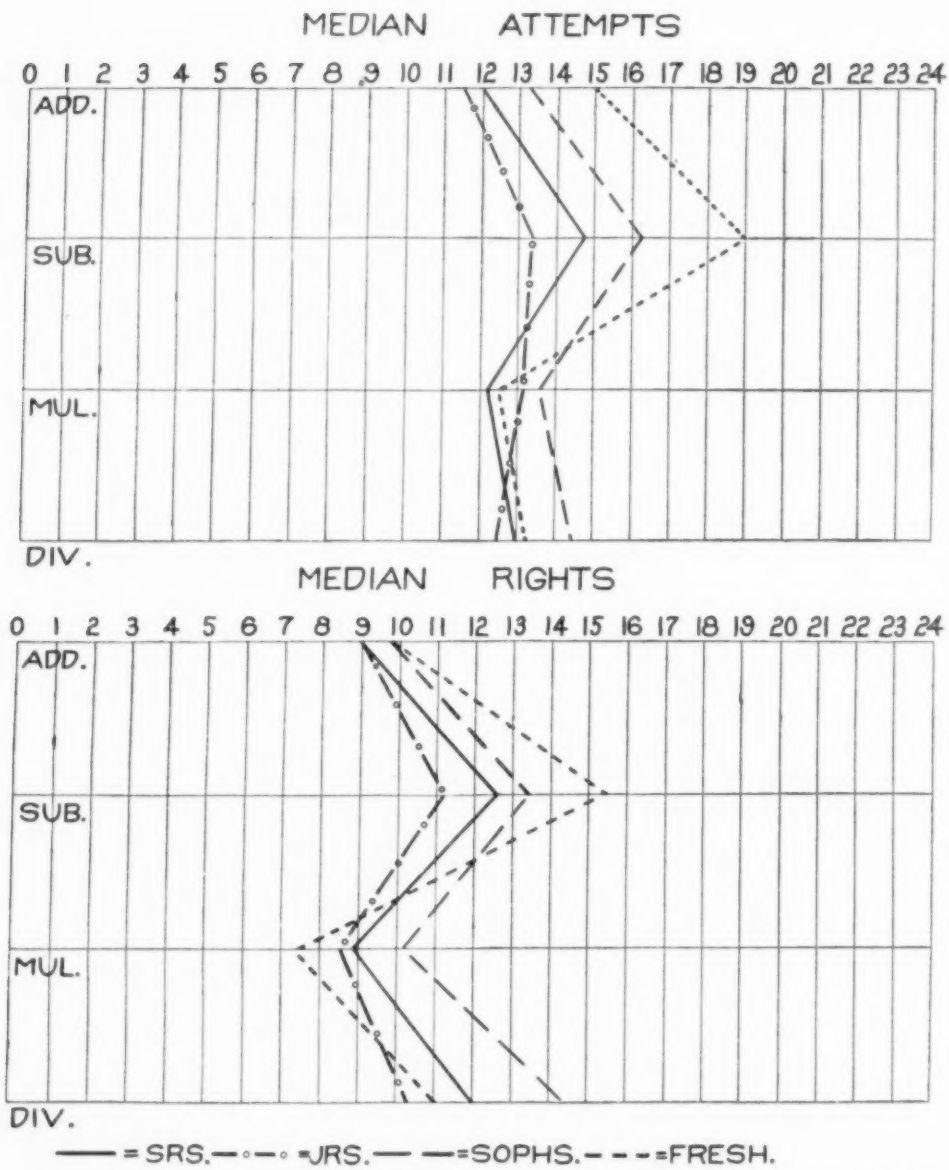
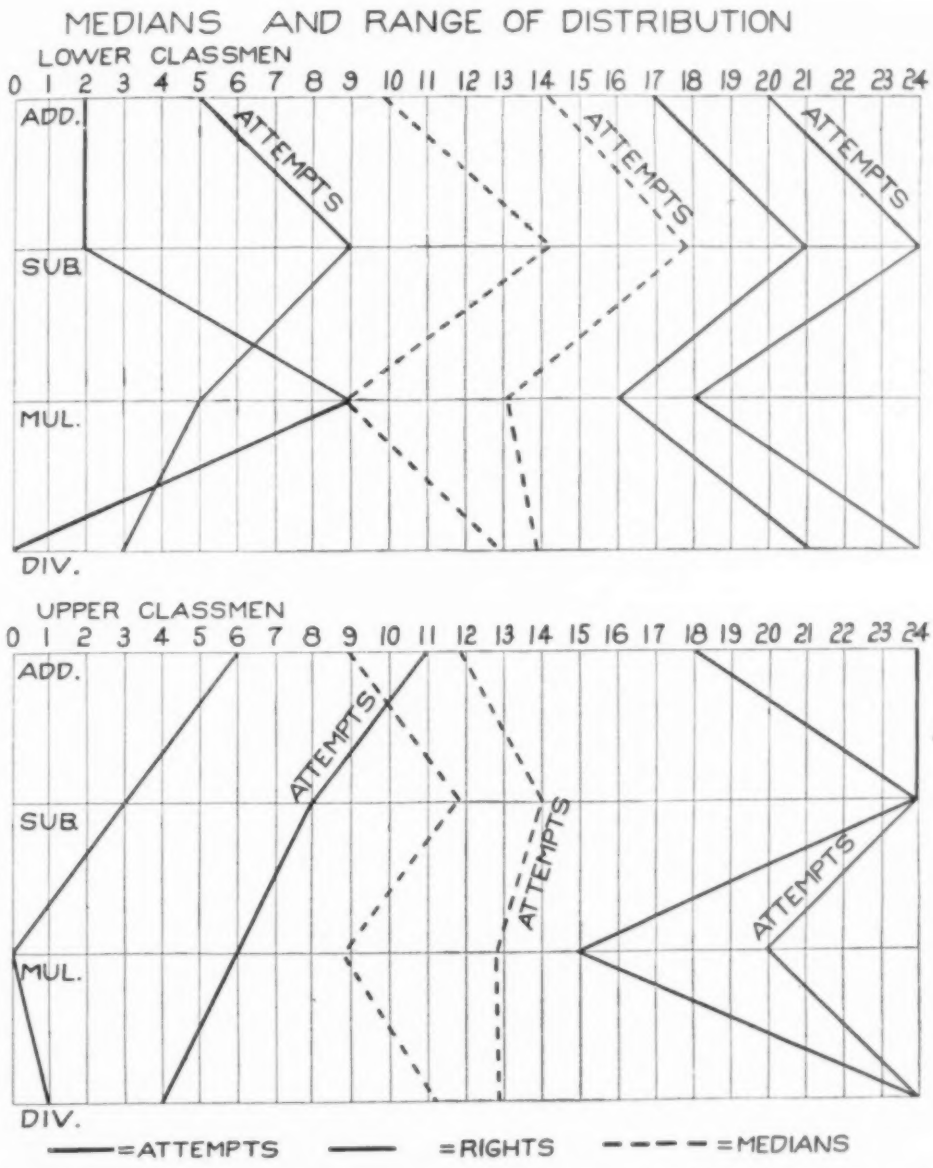
DIV.
ANCIENT & MODERN LANG.
SCIENCE & MATH.
ECONOMICS & HISTORY
ENGINEERS
ENGLISH & PUB. SPEAKING.

public school as computed by Dr. Courtis, and also the highest, lowest and average for the 54 college students, of whom all but five are girls. The sixth grade norm is represented by a broken line extending from the numeral representing sixth grade at the top of the chart to the numeral 2 at the bottom of the chart under fifth grade. The median for the college group is a dotted line beginning at the numeral 10 representing the tenth grade and extending to the numeral 5 at the bottom of the page, representing the 10th grade. The



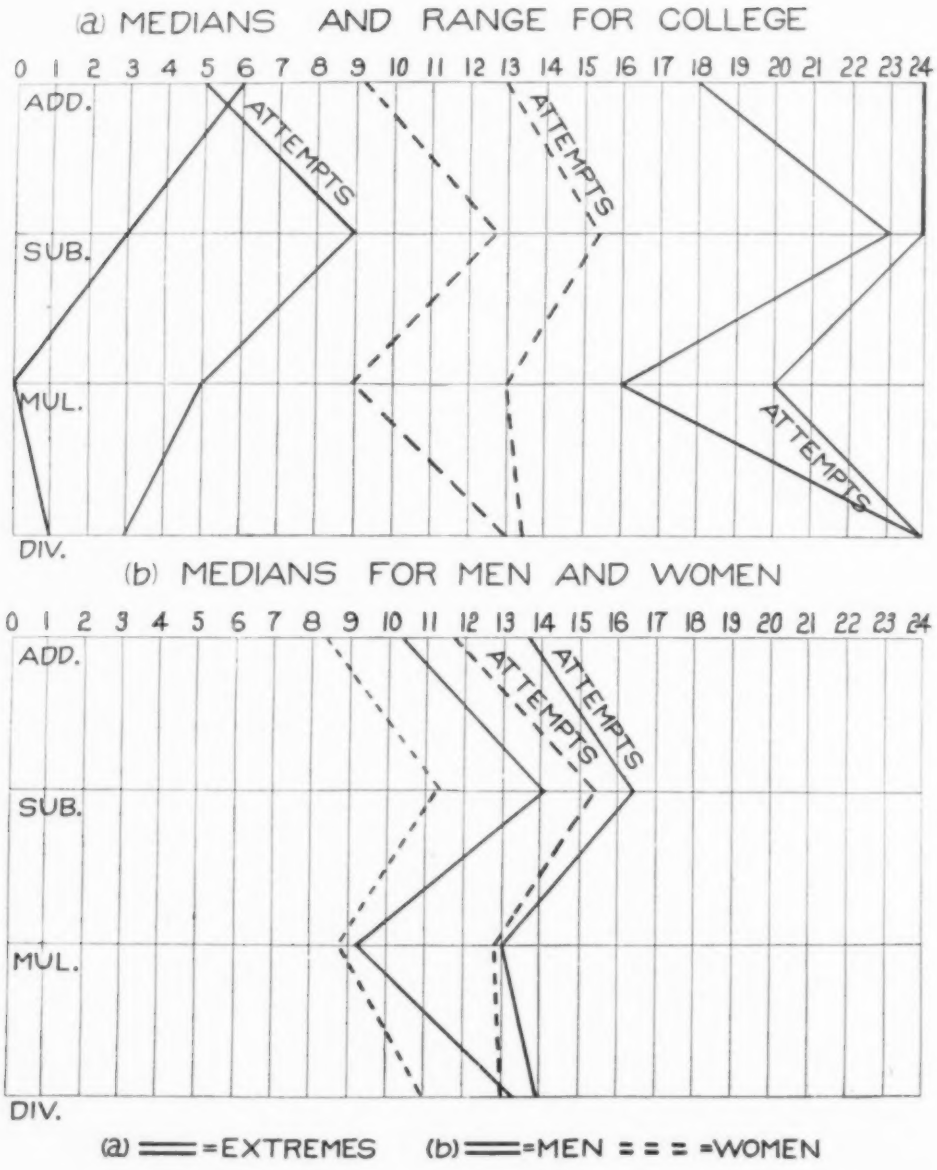
other two irregular lines represent the highest and lowest individual records. The range of distribution is large, varying from a student who made a record slightly below that of the average sixth-grade child to the student who reached the maximum in five of the eight tests within the time limit. *The average for these college students is tenth grade or above,* the tenth-grade norm being an approximate one.

The tests known as series B involve addition, subtraction, multiplication and division, which are relatively more difficult in this series than the same processes are in the A tests. In this series B, there are three columns of figures, 9 figures to a column to add, 8 column problems to subtract, a four-figure multipli-



cand to multiply by two or three figures, and division problems of five numbers to divide by two numbers. The time interval ranges from four to eight minutes and the aims are speed and accuracy. These tests are better adapted to college students than Series A, since they are designed at the lower limit for older pupils with a wide range at the upper limits.

This report, in which I have been assisted in checking scores by one of my students, Ethel B. Harvey, compares the relative speed and accuracy in the four fundamentals of groups of students on the basis of their major subjects; their college class; the influence of age as indicated by "upper" and "lower classmen"; and sex differences.


(a) MEDIANS AND RANGE FOR COLLEGE
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
ADD.
SUB.
MUL.
DIV.
ATTEMPTS
ATTEMPTS
ATTEMPTS
(b) MEDIANS FOR MEN AND WOMEN
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
ADD.
SUB.
MUL.
DIV.
ATTEMPTS
ATTEMPTS
(a) ═══=EXTREMES (b) ═══=MEN = = = =WOMEN

The tests were given to groups of students in the class room under practically uniform conditions by the same examiner in the morning sessions. In the B series, the work was given just before the Thanksgiving holidays when the students were somewhat fatigued and under unusual pressure. Each student scored his own paper, which was subsequently examined and carefully checked for errors. The results were then recorded on class record sheets according to the group desired, and the median of the group was found, together with the variations and the relative accuracy.

The students who took the B test were classi-

fied according to the subjects in which they majored with the intention of determining whether or not there were any correlations in this group of subjects with mathematical ability. The groups used were those majoring: (1) ancient and modern languages, 37 students; (2) economics and history, 31 students; (3) engineering, 37 students; (4) English and public speaking, 31 students; (5) science and mathematics, 28 students. This combination of major subjects may seem more or less arbitrary, but it is based on a group system fairly prevalent in the college.

The range for median attempts in addition varied from 11.7 for economics and history to 14 for science and mathematics, while the rights varied from 7.5 for English and public speaking to 10 for the engineers. In subtraction the English and public speaking majors attempted fewer and completed fewer correctly than the other groups; ancient and modern language students attempted the most, 17, but the engineers completed the most correctly, 14.6. In multiplication the English and public speaking majors again attempted the least number, 11, but had more correct than the history and economics students who made a score of 8 rights. Likewise, the engineers completed the most correctly, 10, although the mathematics and science majors attempted 14.3. In division, the English and public speaking majors attempted and completed the fewest, the numbers being 12 and 9.7, respectively; the language students attempted 14.7, but the highest score for correct ones was made by the mathematics and science majors with a median of 14.

Taking all five groups, the English and public speaking majors average the lowest number of attempts, 11.8, and the fewest correct, 9.7, while the ancient and modern languages surpassed science and mathematics by .1 in making an average of 14.6 attempts. On the average, the engineers completed the most correctly, 12.1, with a relative degree of accuracy of 84 per cent.

Within the limitations of these tests, language, mathematics and science students are rapid but not accurate in simple arithmetical processes; engineers are less rapid but more accurate than these. English, public speaking, economics and history students rank below the others in speed and accuracy.

In the class grouping of 19 freshmen, 61 sophomores, 30 juniors and 54 seniors, the freshmen stand highest in number of attempts in addition and subtraction, the sophomores in multiplication and division, while the juniors stand lowest in attempts in addition, subtraction and division; the seniors in multiplication. The juniors have the fewest rights in addition, subtraction and division, and the freshmen in multiplication; the sophomores have the highest number right in addition, multiplication and division, the freshmen in subtraction. The freshmen average the highest median for all attempts in all four processes, 14.9; the sophomores with a median of 11.9 average the highest for rights. The juniors have the lowest average number of attempts, 12.6, and of rights, 9.8.

In comparing the standing according to lower and upper classmen, who range in age approximately from 17–19 and from 20–22, it is found that the lower classmen make a higher average than the upper, but the upper classmen make 1.5 per cent. higher degree of relative accuracy than the lower classmen.

It is noticeable that in the classification of men and women, of whom there are 96 women and 68 men, the men score above the women in all the individual processes, 8 per cent. in attempts and 16 per cent. in rights with 6 per cent. higher degree of relative accuracy. The men surpass the women in both speed and accuracy.

Ranking the 96 women and 68 men in the four processes for rights and attempts, and working out the coefficient of correlation for these and for each process with the other three of the group by the Spearman formula of $1-(6\Sigma G/n^2-1)$, one finds that there is a fairly high correlation between rights and attempts for both men and women in division; the lowest correlation is in addition. The high coefficient in division is explained in part by the fact that in these problems there were no remainders.

TABLE I

Men

	Coefficient
Addition	Att. with Rt. = .59
Subtraction	Att. with Rt. = .76
Multiplication	Att. with Rt. = .65
Division	Att. with Rt. = .84

Women

	Coefficient
Addition	Att. with Rt. = .60
Subtraction	Att. with Rt. = .74
Multiplication	Att. with Rt. = .63
Division	Att. with Rt. = .83

	Men		Women	
	Att.	Rt.	Att.	Rt.
Addition with subtraction.....	.36	.29	.42	.35
Addition with multiplication..	.32	.34	.48	.40
Addition with division.....	.14	.24	.33	.32
Subtraction with multiplication	.38	.34	.52	.43
Subtraction with division.....	.34	.25	.43	.50
Multiplication with division...	.39	.35	.50	.53

The correlations between the different processes in both rights and attempts are uniformly below .50 with one exception, which is .53 for the women between multiplication and division in rights, and is uniformly above .23, with one exception which is .14 for the men between addition and division in attempts. The correlations for all the processes in attempts and rights are uniformly higher for women than for men. The highest correlation is between multiplication and division. The results are shown in Table I.

Table II. gives the medians and variations of each of the four processes for all groups in attempts and rights by Mr. Courtis's method of scoring.

The range of individual scores of the 164 individuals is wide, varying from 5½ to 23 in attempts, the highest average number being made by a mathematics major. In the single process of addition, the highest record for rights was 21 examples. In subtraction three students had the 24 correct. Where the double process of multiplying and adding is entailed, speed and accuracy are greatly reduced, for only two did as many as 17. This would indicate that the multiplication test is relatively too difficult. The range in division is from 3 to 24 for attempts and from 1 to 24 for rights. The lowest per cent. made by any individual in relative accuracy is 34.5 per cent., a conditioned freshman, and the highest was 98.45, made by an Armenian man in the senior class. The highest degree of relative accuracy seen in any one of the processes is in division. Multiplication shows the shortest range.

BIRD T. BALDWIN

TABLE II

	Test No. 1, Addition				Test No. 2, Subtraction				Test No. 3, Multiplication				Test No. 4, Division			
	Attempts		Rights		Attempts		Rights		Attempts		Rights		Attempts		Rights	
	Med.	Var.	Med.	Var.	Med.	Var.	Med.	Var.	Med.	Var.	Med.	Var.	Med.	Var.	Med.	Var.
Ancient and modern languages	13.3	19	8.9	28	17.0	21	12.5	28	13.5	19	9.8	38	14.7	25	13.2	29
Economics and history.....	11.7	19	9.8	24	14.2	27	11.5	25	12.7	15	8	60	13	28	10	35
Engineers.....	13	19	10	28	16.7	21	14.6	23	13.5	17	10	31	14	17	13.7	24
English and public speaking.	11.8	21	7.5	43	12.6	22	10	28	11	9	8.3	28	12	22	9.7	13
Science and mathematics.....	14	25	9.7	33	15.8	13	13.7	21	14.3	31	9	47	14	29	14	29
Freshmen.....	15	19	9.8	28	19	16	15.5	19	12.6	18	7.3	37	13.3	22	11	27
Sophomores.....	13.3	15	9.8	29	16.3	14	13.4	27	13.7	15	10.2	19	14.5	20	14.3	25
Juniors.....	11.5	20	9	28	13.4	19	11.3	28	13.2	21	8.6	37	12.5	22	10.6	30
Seniors.....	12	22	9	31	14.8	24	12.6	23	12.2	27	8.9	28	13	25	12	26
Women.....	11.8	26	8.3	33	14.4	27	11.3	29	12.8	28	8.8	37	13	29	11	31
Men.....	13.7	19	10.3	24	16.4	21	14.1	14	13	20	9.2	27	13.9	24	13.3	26
Lower classmen	14.2	17	9.8	28	17.7	15	14.5	23	13.2	17	8.8	28	13.9	21	12.7	26
Upper classmen	11.8	21	9	29	14.1	21	12.0	25	12.7	24	8.8	33	12.8	23	11	28
Average college student.....	12.8	19	9.3	29	15.4	18	12.7	22	12.9	24	9.0	32	13.4	27	12.1	28